
ANTARES
ANTARES

1
00:00:03,800 --> 00:00:02,300
good afternoon and welcome back to

2
00:00:05,240 --> 00:00:03,810
nasa's wallops flight facility in

3
00:00:07,519 --> 00:00:05,250
Wallops Island Virginia and NASA public

4
00:00:09,589 --> 00:00:07,529
affairs officer Trent perrotto we're

5
00:00:11,360 --> 00:00:09,599
here for the second of two pre-launch

6
00:00:12,730 --> 00:00:11,370
briefings looking ahead to the orbital

7
00:00:15,289 --> 00:00:12,740
one mission which is launching tomorrow

8
00:00:17,689 --> 00:00:15,299
wednesday january eight the 132 p.m.

9
00:00:19,070 --> 00:00:17,699
from right here at Wallops you heard in

10
00:00:20,090 --> 00:00:19,080
previous hour a little bit about the

11
00:00:21,290 --> 00:00:20,100
science that's headed to the

12
00:00:23,090 --> 00:00:21,300
international space station aboard

13
00:00:24,740 --> 00:00:23,100

orbital one so now we'll look ahead to

14
00:00:27,259 --> 00:00:24,750
the launch itself here a little bit

15
00:00:29,450 --> 00:00:27,269
about the readiness of both the station

16
00:00:31,730 --> 00:00:29,460
and the and the rocket and the range and

17
00:00:33,319 --> 00:00:31,740
hopefully get a positive weather report

18
00:00:36,380 --> 00:00:33,329
again you can find out more information

19
00:00:38,450 --> 00:00:36,390
about the orbital one mission at wwc gov

20
00:00:40,220 --> 00:00:38,460
/ station we have a number of

21
00:00:41,420 --> 00:00:40,230
distinguished guests joining us today if

22
00:00:44,000 --> 00:00:41,430
you have any questions for them you're

23
00:00:45,260 --> 00:00:44,010
watching online ah NASA TV or streaming

24
00:00:48,529 --> 00:00:45,270
video you can ask us your questions

25
00:00:51,319 --> 00:00:48,539
using the hashtag ask NASA on Twitter

26
00:00:53,240 --> 00:00:51,329
and Google Plus each of our presenters

27
00:00:54,709 --> 00:00:53,250
will give a some brief remarks and will

28
00:00:56,930 --> 00:00:54,719
follow with question and answer here in

29
00:00:58,849 --> 00:00:56,940
the audience and on the phone line here

30
00:01:01,069 --> 00:00:58,859
at Wallops I have to my left Frank

31
00:01:03,920 --> 00:01:01,079
Culbertson orbital sciences executive

32
00:01:06,230 --> 00:01:03,930
vice president next time next to Frank

33
00:01:08,060 --> 00:01:06,240
is Mike Kingston senior vice president

34
00:01:11,810 --> 00:01:08,070
and Antares program director of orbital

35
00:01:14,240 --> 00:01:11,820
sciences and we have Sarah dharti the

36
00:01:15,740 --> 00:01:14,250
Wallops test director but first we'll

37
00:01:16,999 --> 00:01:15,750
begin at the Johnson Space Center in

38
00:01:18,710 --> 00:01:17,009

Houston where we're joined by the

39
00:01:24,300 --> 00:01:18,720
International Space Station deputy

40
00:01:30,760 --> 00:01:28,030
see you got me if thanks trenton good

41
00:01:34,240 --> 00:01:30,770
afternoon as most you know we had plan

42
00:01:36,070 --> 00:01:34,250
to be here for the Cygnus launch in the

43
00:01:38,070 --> 00:01:36,080
mid December time period but we had some

44
00:01:40,540 --> 00:01:38,080
issues on board with our external

45
00:01:43,510 --> 00:01:40,550
thermal control system that needed to be

46
00:01:45,400 --> 00:01:43,520
addressed and so we conducted a couple

47
00:01:48,070 --> 00:01:45,410
of EVs from mid-december through

48
00:01:51,010 --> 00:01:48,080
Christmas Eve and took care of those

49
00:01:52,990 --> 00:01:51,020
thermal control issues and we really

50
00:01:55,120 --> 00:01:53,000
appreciate orbital standing down and

51
00:01:57,340 --> 00:01:55,130
that mid December time period so we

52
00:01:59,260 --> 00:01:57,350
could work through that we then had to

53
00:02:02,950 --> 00:01:59,270
come over come the high beta pass which

54
00:02:05,080 --> 00:02:02,960
we came out of justice just this week

55
00:02:07,150 --> 00:02:05,090
actually today and so that basically

56
00:02:10,750 --> 00:02:07,160
opened up the window for us for the

57
00:02:12,820 --> 00:02:10,760
launch of Cygnus found the tui VA's we

58
00:02:15,070 --> 00:02:12,830
needed to do a lot of reintegration work

59
00:02:16,390 --> 00:02:15,080
with our interface heat exchangers to

60
00:02:18,280 --> 00:02:16,400
get our thermal loads back up the

61
00:02:20,770 --> 00:02:18,290
capability to reintegrate the Columbus

62
00:02:23,320 --> 00:02:20,780
module the gem module and get our full

63
00:02:26,170 --> 00:02:23,330

research capacity back up in order that

64
00:02:28,120 --> 00:02:26,180
was all successfully done following the

65
00:02:30,580 --> 00:02:28,130
rnr of the pump that took about two or

66
00:02:32,199 --> 00:02:30,590
three days to integrate the system back

67
00:02:33,790 --> 00:02:32,209
to normal and we've been in that state

68
00:02:35,979 --> 00:02:33,800
sense and like I said we came through

69
00:02:38,800 --> 00:02:35,989
the high beta pass and everything looks

70
00:02:41,410 --> 00:02:38,810
good we did leave our old pump on the

71
00:02:43,600 --> 00:02:41,420
MSS system and so in a subsequent EBA we

72
00:02:46,060 --> 00:02:43,610
have to go back out relocate that old

73
00:02:48,010 --> 00:02:46,070
pump over to an ELC and in the meantime

74
00:02:51,280 --> 00:02:48,020
our engineers and we'll figure out a way

75
00:02:53,850 --> 00:02:51,290
to potentially treat that old pump as a

76
00:02:57,370 --> 00:02:53,860
future spare we're looking at ways to

77
00:02:59,050 --> 00:02:57,380
potentially add external valving to it

78
00:03:00,670 --> 00:02:59,060
to get away from that flow control away

79
00:03:03,130 --> 00:03:00,680
from that flow control valve issue that

80
00:03:07,180 --> 00:03:03,140
we what we had that gave us the initial

81
00:03:09,340 --> 00:03:07,190
problem we conducted our ISS mission

82
00:03:12,400 --> 00:03:09,350
readiness review yesterday at the IMM

83
00:03:15,460 --> 00:03:12,410
tea I'm glad to say we have met all of

84
00:03:17,560 --> 00:03:15,470
our launch commit criteria so so from an

85
00:03:19,990 --> 00:03:17,570
ISS standpoint we're good to go we did

86
00:03:23,080 --> 00:03:20,000
our proximity checkouts we've got the

87
00:03:25,270 --> 00:03:23,090
SSR engine and a couple more onboard

88
00:03:28,290 --> 00:03:25,280

training with our crew members that will

89
00:03:30,940 --> 00:03:28,300
take place between now and capture day

90
00:03:32,530 --> 00:03:30,950
and so we'll get that into the timeline

91
00:03:35,050 --> 00:03:32,540
and then we also plan to give our crew a

92
00:03:37,059 --> 00:03:35,060
couple days off between now and

93
00:03:39,490 --> 00:03:37,069
and the critical activity of capturing

94
00:03:41,770 --> 00:03:39,500
and bursting of the Cygnus to note to

95
00:03:44,380 --> 00:03:41,780
nadir so our window will open up

96
00:03:46,510 --> 00:03:44,390
tomorrow and I'm sure Frank will talk a

97
00:03:48,970 --> 00:03:46,520
lot more about the processing that's

98
00:03:52,509 --> 00:03:48,980
going on at the hip and at the pad as

99
00:03:54,640 --> 00:03:52,519
well as a weather report we are really

100
00:03:58,030 --> 00:03:54,650
looking forward to this first orbital

101
00:04:01,509 --> 00:03:58,040
cargo mission we're curing about 1,500

102
00:04:03,580 --> 00:04:01,519
kilograms of carville full load we made

103
00:04:05,680 --> 00:04:03,590
no restrictions on what we placed on the

104
00:04:08,470 --> 00:04:05,690
manifest if it was a critical need we

105
00:04:10,210 --> 00:04:08,480
put it on there we've got four or five

106
00:04:12,100 --> 00:04:10,220
hundred kilograms of research flying and

107
00:04:13,809 --> 00:04:12,110
so we're ready to get on with this

108
00:04:18,280 --> 00:04:13,819
mission looking forward to tomorrow

109
00:04:20,289 --> 00:04:18,290
afternoon and following that we're kind

110
00:04:21,969 --> 00:04:20,299
of we're passionate ourselves to hit our

111
00:04:24,520 --> 00:04:21,979
stride with all of our new commercial

112
00:04:27,610 --> 00:04:24,530
cargo vehicles in the 2014 time period

113
00:04:30,310 --> 00:04:27,620

we've got about five or six slated for

114
00:04:32,440 --> 00:04:30,320
this year or one will be the first we'll

115
00:04:33,760 --> 00:04:32,450
get into some SpaceX and basically kind

116
00:04:35,650 --> 00:04:33,770
of alternate back and forth between

117
00:04:37,300 --> 00:04:35,660
orbitals and SpaceX throughout the year

118
00:04:39,340 --> 00:04:37,310
and so we're really looking to hit our

119
00:04:42,250 --> 00:04:39,350
stride in 2014 to meet our up mess up

120
00:04:45,760 --> 00:04:42,260
mast needs as far as a little bit of

121
00:04:47,080 --> 00:04:45,770
look ahead on the ISS as you know the

122
00:04:50,320 --> 00:04:47,090
Russians had a little bit of trouble

123
00:04:52,200 --> 00:04:50,330
with their EBA that they did after after

124
00:04:54,610 --> 00:04:52,210
Christmas they had some issues

125
00:04:56,890 --> 00:04:54,620
integrating a couple of their telescopes

126
00:04:59,790 --> 00:04:56,900
on to their segment they brought those

127
00:05:02,050 --> 00:04:59,800
telescopes back in and just as a

128
00:05:04,659 --> 00:05:02,060
information we're in discussions with

129
00:05:08,080 --> 00:05:04,669
them as far as a carrying out a second

130
00:05:10,960 --> 00:05:08,090
dva to put those back in place pry it

131
00:05:12,730 --> 00:05:10,970
the tail end of january and i think

132
00:05:15,490 --> 00:05:12,740
we're targeting around the january 27

133
00:05:18,219 --> 00:05:15,500
time period we have 52 p that will

134
00:05:22,629 --> 00:05:18,229
undock on februari second with in 54 p

135
00:05:24,400 --> 00:05:22,639
arriving on februari fifth following

136
00:05:26,980 --> 00:05:24,410
that we'll have our space x 3 mission

137
00:05:29,320 --> 00:05:26,990
which is still slated for februari 22nd

138
00:05:31,570 --> 00:05:29,330

space second spacex had a very

139
00:05:33,820 --> 00:05:31,580
successful one dot one falcon one dot

140
00:05:36,490 --> 00:05:33,830
one launched yesterday which paved the

141
00:05:38,620 --> 00:05:36,500
way for for the februari 22nd mission so

142
00:05:40,629 --> 00:05:38,630
we're really looking forward to that so

143
00:05:43,149 --> 00:05:40,639
to recap we're really excited about the

144
00:05:44,770 --> 00:05:43,159
orb 1 launch tomorrow and we're ready to

145
00:05:47,320 --> 00:05:44,780
go we're ready to capture it on Sunday

146
00:05:48,460 --> 00:05:47,330
and so with that I'll turn it back over

147
00:05:51,280 --> 00:05:48,470
to Trent

148
00:05:52,780 --> 00:05:51,290
Frank thank you very much Dan yet let's

149
00:05:55,120 --> 00:05:52,790
start with the Frank Culbertson here at

150
00:05:56,950 --> 00:05:55,130
Wallace thank you very much and good

151
00:06:00,640 --> 00:05:56,960
afternoon to everybody and welcome to

152
00:06:02,800 --> 00:06:00,650
Wallops as you know we were at the pad

153
00:06:04,420 --> 00:06:02,810
in December a lot of us were actually on

154
00:06:07,120 --> 00:06:04,430
our way to Wallops when the decision was

155
00:06:09,280 --> 00:06:07,130
made to conduct the EVs rather than

156
00:06:11,320 --> 00:06:09,290
continuing with the processing for the

157
00:06:13,510 --> 00:06:11,330
launch I congratulate nests on the

158
00:06:16,330 --> 00:06:13,520
success of those EVs the crew did a

159
00:06:17,680 --> 00:06:16,340
great job of replacing the pump very

160
00:06:19,840 --> 00:06:17,690
efficiently and quicker than they

161
00:06:21,820 --> 00:06:19,850
thought but it's always a tough job to

162
00:06:24,040 --> 00:06:21,830
replace something that big so we were

163
00:06:25,510 --> 00:06:24,050

happy to see that completed it did give

164
00:06:28,180 --> 00:06:25,520
everybody a chance to take a little bit

165
00:06:29,980 --> 00:06:28,190
of time off over the holidays and now

166
00:06:32,530 --> 00:06:29,990
we're back here again and out on the pad

167
00:06:34,660 --> 00:06:32,540
and getting ready to go this is going to

168
00:06:36,550 --> 00:06:34,670
be a big week for Space Flight in the US

169
00:06:39,970 --> 00:06:36,560
and I congratulate SpaceX on their

170
00:06:41,830 --> 00:06:39,980
successful launch yesterday and that's a

171
00:06:43,770 --> 00:06:41,840
big deal to be launching so many in one

172
00:06:45,909 --> 00:06:43,780
week December was a very busy month

173
00:06:47,260 --> 00:06:45,919
January's going to be busy and I think

174
00:06:49,780 --> 00:06:47,270
you're going to see that the United

175
00:06:51,340 --> 00:06:49,790
States is going to continue to build up

176
00:06:54,060 --> 00:06:51,350
our launch rate and build up our

177
00:06:56,650 --> 00:06:54,070
capabilities to carry payloads

178
00:06:59,710 --> 00:06:56,660
commercial satellites and eventually

179
00:07:02,350 --> 00:06:59,720
humans into orbit so keep an eye on

180
00:07:03,760 --> 00:07:02,360
what's going on because you all probably

181
00:07:05,409 --> 00:07:03,770
will want to be a part of it someday

182
00:07:08,580 --> 00:07:05,419
particularly the students that are

183
00:07:11,170 --> 00:07:08,590
watching this will be the first of three

184
00:07:15,070 --> 00:07:11,180
contracted cargo delivery missions for

185
00:07:17,350 --> 00:07:15,080
us this year we plan to also launched

186
00:07:20,620 --> 00:07:17,360
one in May and another in October at the

187
00:07:22,200 --> 00:07:20,630
schedule holes and in the at the end of

188
00:07:26,200 --> 00:07:22,210

the year we will have delivered

189
00:07:28,540 --> 00:07:26,210
approximately 50 500 kilograms of cargo

190
00:07:31,150 --> 00:07:28,550
to the space station commercially this

191
00:07:34,210 --> 00:07:31,160
mission is going to carry 1461 kilograms

192
00:07:36,550 --> 00:07:34,220
not quite a full load but pretty close a

193
00:07:38,740 --> 00:07:36,560
lot of it was late load science as Dan

194
00:07:40,300 --> 00:07:38,750
said experiments and you've been

195
00:07:43,030 --> 00:07:40,310
learning about those earlier today many

196
00:07:44,890 --> 00:07:43,040
of you in the audience here and I can't

197
00:07:46,810 --> 00:07:44,900
emphasize enough the importance of

198
00:07:49,450 --> 00:07:46,820
carrying the research to the space

199
00:07:52,360 --> 00:07:49,460
station and continuing to develop that

200
00:07:53,260 --> 00:07:52,370
facility as a as a laboratory and as a

201
00:07:54,370 --> 00:07:53,270
now

202
00:07:56,740 --> 00:07:54,380
hosts in which we can conduct

203
00:07:59,860 --> 00:07:56,750
experiments research and learn more and

204
00:08:01,330 --> 00:07:59,870
more about living in space it also as we

205
00:08:03,700 --> 00:08:01,340
develop its capabilities will be a

206
00:08:06,010 --> 00:08:03,710
stepping stone at least figuratively if

207
00:08:09,310 --> 00:08:06,020
not literally to the rest of the solar

208
00:08:10,630 --> 00:08:09,320
system we're on a tight schedule Mike

209
00:08:13,240 --> 00:08:10,640
will tell you in a moment where we are

210
00:08:14,740 --> 00:08:13,250
in the processing and we've got a little

211
00:08:17,740 --> 00:08:14,750
bit of margin left in the schedule but

212
00:08:19,330 --> 00:08:17,750
not a lot and we intend to continue to

213
00:08:20,650 --> 00:08:19,340

work through the night and bring the

214
00:08:23,710 --> 00:08:20,660
team in in the morning to begin the

215
00:08:25,330 --> 00:08:23,720
countdown processing and launch it 132

216
00:08:28,420 --> 00:08:25,340
tomorrow afternoon we've got only a

217
00:08:30,160 --> 00:08:28,430
five-minute window so it's going to be a

218
00:08:33,520 --> 00:08:30,170
countdown that's going to have to go

219
00:08:35,920 --> 00:08:33,530
very smoothly for us after launch we

220
00:08:38,520 --> 00:08:35,930
will rendezvous in about approximately

221
00:08:40,450 --> 00:08:38,530
three days two-and-a-half to three days

222
00:08:42,880 --> 00:08:40,460
well actually if we launched tomorrow

223
00:08:44,710 --> 00:08:42,890
it'll be three and a half days and if we

224
00:08:46,210 --> 00:08:44,720
launch on Thursday it'll be two and a

225
00:08:47,590 --> 00:08:46,220
half days so either way we're going to

226
00:08:51,670 --> 00:08:47,600
arrive at the station on the twelfth of

227
00:08:55,270 --> 00:08:51,680
January and deliver the cargo to the

228
00:08:57,190 --> 00:08:55,280
crew our fate our rendezvous date

229
00:08:59,650 --> 00:08:57,200
depends on the phasing and where the

230
00:09:01,480 --> 00:08:59,660
station is when we launched and and how

231
00:09:04,090 --> 00:09:01,490
much we have to make make up ground as

232
00:09:06,100 --> 00:09:04,100
we as we catch up with them so it varies

233
00:09:07,560 --> 00:09:06,110
a little bit day to day but we're trying

234
00:09:09,790 --> 00:09:07,570
to reduce the time as much as possible

235
00:09:14,470 --> 00:09:09,800
before arrival so that the science

236
00:09:15,970 --> 00:09:14,480
arrives as fresh as possible I want to

237
00:09:20,100 --> 00:09:15,980
emphasize before I hand it over to Mike

238
00:09:22,510 --> 00:09:20,110

again the importance of what we're doing

239
00:09:25,810 --> 00:09:22,520
David Thompson and all of us at orbital

240
00:09:29,620 --> 00:09:25,820
believe in developing the capability to

241
00:09:32,080 --> 00:09:29,630
fly payloads spacecraft and rockets into

242
00:09:33,580 --> 00:09:32,090
space on a commercial basis we support

243
00:09:35,230 --> 00:09:33,590
government customers private customers

244
00:09:36,700 --> 00:09:35,240
and now we're supporting the

245
00:09:39,910 --> 00:09:36,710
International Space Station and it's

246
00:09:41,740 --> 00:09:39,920
research and we continue we tend to

247
00:09:43,930 --> 00:09:41,750
continue growing that business as do

248
00:09:45,940 --> 00:09:43,940
other companies but that what that means

249
00:09:48,100 --> 00:09:45,950
is that science will be more readily

250
00:09:49,900 --> 00:09:48,110
accessible to people on earth because

251
00:09:52,360 --> 00:09:49,910
they can participate in what's going on

252
00:09:53,800 --> 00:09:52,370
in in space it also means the space

253
00:09:56,140 --> 00:09:53,810
station will continue to grow in

254
00:09:58,030 --> 00:09:56,150
relevance and in productivity which will

255
00:10:00,100 --> 00:09:58,040
allow us to have a future for human

256
00:10:01,720 --> 00:10:00,110
spaceflight in this country and a future

257
00:10:03,199 --> 00:10:01,730
for our children to go into space to

258
00:10:05,179 --> 00:10:03,209
explore

259
00:10:06,859 --> 00:10:05,189
if we keep the space station going we

260
00:10:10,579 --> 00:10:06,869
will have that future so it's important

261
00:10:12,259 --> 00:10:10,589
that we do that Space Flight is hard it

262
00:10:13,790 --> 00:10:12,269
will never really be easy until we have

263
00:10:15,079 --> 00:10:13,800

some new technology that allows us to

264
00:10:17,299 --> 00:10:15,089
levitate off the surface of the earth

265
00:10:20,419 --> 00:10:17,309
and I hear they're working on that but

266
00:10:22,460 --> 00:10:20,429
we don't have it at any rate every

267
00:10:25,819 --> 00:10:22,470
countdown we do is difficult and it's

268
00:10:27,679 --> 00:10:25,829
mike will did it run out of time no as

269
00:10:30,230 --> 00:10:27,689
Michael will point out we've been

270
00:10:31,910 --> 00:10:30,240
dealing with challenges here spaceflight

271
00:10:35,090 --> 00:10:31,920
requires a lot of energy a lot of people

272
00:10:36,919 --> 00:10:35,100
a complexity and and a lot of dedication

273
00:10:38,509 --> 00:10:36,929
and that's what you see here is the

274
00:10:40,790 --> 00:10:38,519
dedication of these teams here at

275
00:10:43,549 --> 00:10:40,800
Wallops at the launch pad and at orbital

276
00:10:45,739 --> 00:10:43,559
to continue conducting spaceflight on a

277
00:10:48,139 --> 00:10:45,749
commercial basis and carry cargo to the

278
00:10:49,790 --> 00:10:48,149
International Space Station persistence

279
00:10:51,669 --> 00:10:49,800
is what really makes a difference in

280
00:10:54,290 --> 00:10:51,679
this so with that I want to introduce

281
00:10:57,290 --> 00:10:54,300
Mike Kingston who is a program manager

282
00:10:59,900 --> 00:10:57,300
for our entire East program very proud

283
00:11:01,759 --> 00:10:59,910
of what Mike has done successful test

284
00:11:03,650 --> 00:11:01,769
flight last year a successful demo

285
00:11:05,720 --> 00:11:03,660
mission and he's leading a great team

286
00:11:08,269 --> 00:11:05,730
who worked really hard through a very

287
00:11:11,809 --> 00:11:08,279
cold night last night to continue the

288
00:11:14,449 --> 00:11:11,819

processing so Mike all right thanks I

289
00:11:16,069 --> 00:11:14,459
think I have a few photos to show that

290
00:11:19,489 --> 00:11:16,079
will kind of talk you through some of

291
00:11:21,259 --> 00:11:19,499
the major milestones that got us to the

292
00:11:24,079 --> 00:11:21,269
point we're at today getting ready for a

293
00:11:26,780 --> 00:11:24,089
launch tomorrow so if we can bring up

294
00:11:29,059 --> 00:11:26,790
the photos now the first one is a shot

295
00:11:32,030 --> 00:11:29,069
now you'll see the Cygnus spacecraft in

296
00:11:33,499 --> 00:11:32,040
the foreground of our in the foreground

297
00:11:36,019 --> 00:11:33,509
of our horizontal integration facility

298
00:11:37,609 --> 00:11:36,029
over on the island here Wallops in the

299
00:11:40,400 --> 00:11:37,619
background you'll see the a fully

300
00:11:43,400 --> 00:11:40,410
assembled Antares rocket being lifted

301
00:11:46,100 --> 00:11:43,410
off of its production dollies and over

302
00:11:48,679 --> 00:11:46,110
over on the right to the transporter

303
00:11:50,269 --> 00:11:48,689
erector launchers strong back which is

304
00:11:53,150 --> 00:11:50,279
the big white structure you see that's

305
00:11:56,090 --> 00:11:53,160
used to erect the launch vehicle on the

306
00:11:58,579 --> 00:11:56,100
launch pad this photo was obviously

307
00:12:00,289 --> 00:11:58,589
taken you know back in the early

308
00:12:01,820 --> 00:12:00,299
December time frame before the first

309
00:12:06,560 --> 00:12:01,830
roll out in

310
00:12:09,050 --> 00:12:06,570
in mid December we get the next one this

311
00:12:11,800 --> 00:12:09,060
is a shot of the the sickness mate

312
00:12:15,200 --> 00:12:11,810
operation the sickness is rotated from

313
00:12:19,070 --> 00:12:15,210

from its vertical position that you saw

314
00:12:20,690 --> 00:12:19,080
the previous slide to a horizontal on a

315
00:12:22,430 --> 00:12:20,700
mating fixture and then rolled up to the

316
00:12:25,820 --> 00:12:22,440
front of the Antares rocket and our

317
00:12:30,530 --> 00:12:25,830
teams they're attaching it to the to the

318
00:12:33,560 --> 00:12:30,540
second stage of Antares on to the next

319
00:12:35,870 --> 00:12:33,570
one this is a this is a photo after that

320
00:12:37,970 --> 00:12:35,880
mate and a little a couple of test

321
00:12:41,120 --> 00:12:37,980
operations we go into the final cardo

322
00:12:44,090 --> 00:12:41,130
load that's the team up on the up on the

323
00:12:46,730 --> 00:12:44,100
stand there loading the final cargo bags

324
00:12:50,150 --> 00:12:46,740
into the Cygnus spacecraft after which

325
00:12:56,300 --> 00:12:50,160
we button button the pressurized cargo

326
00:12:58,370 --> 00:12:56,310
module up for for flight the next after

327
00:13:01,400 --> 00:12:58,380
that we slide the fairing over the top

328
00:13:03,440 --> 00:13:01,410
and encapsulate the payload and that's

329
00:13:05,810 --> 00:13:03,450
really the final major step we

330
00:13:09,140 --> 00:13:05,820
accomplished prior to roll out to the

331
00:13:11,480 --> 00:13:09,150
pad it takes to the next one this is a

332
00:13:13,790 --> 00:13:11,490
photo of that rollout operation this was

333
00:13:16,400 --> 00:13:13,800
actually the first roll out in December

334
00:13:18,500 --> 00:13:16,410
you can see it's at night that was a

335
00:13:21,800 --> 00:13:18,510
three o'clock in the morning on December

336
00:13:24,380 --> 00:13:21,810
17th and you'll see the Antares rocket

337
00:13:27,470 --> 00:13:24,390
on the transporter erector on its way to

338
00:13:29,840 --> 00:13:27,480

the pad the portable air-conditioning

339
00:13:32,090 --> 00:13:29,850
unit behind it to keeping everything

340
00:13:37,250 --> 00:13:32,100
condition nice and cozy and all of the

341
00:13:40,940 --> 00:13:37,260
all the payload base then the next one

342
00:13:44,090 --> 00:13:40,950
is finally the erection of the the

343
00:13:47,390 --> 00:13:44,100
rocket up onto the pad so you know where

344
00:13:48,950 --> 00:13:47,400
we are now we actually went through that

345
00:13:51,320 --> 00:13:48,960
operation back in December as I've

346
00:13:53,090 --> 00:13:51,330
already mentioned before we we stood

347
00:13:57,440 --> 00:13:53,100
down for the repairs on the space

348
00:13:59,240 --> 00:13:57,450
station we were prepared to do that to

349
00:14:00,860 --> 00:13:59,250
roll it back out Saturday we ended up

350
00:14:03,880 --> 00:14:00,870
having to push that off a day to work a

351
00:14:06,380 --> 00:14:03,890
problem with the hydraulic system on the

352
00:14:09,500 --> 00:14:06,390
on the erection on the erector out of

353
00:14:10,790 --> 00:14:09,510
the pad got to roll out sunday around

354
00:14:14,000 --> 00:14:10,800
four o'clock in the afternoon

355
00:14:16,519 --> 00:14:14,010
and the team has been out there 24 24

356
00:14:18,019 --> 00:14:16,529
hours around the clock since getting the

357
00:14:21,259 --> 00:14:18,029
rocket connected to the pad all the

358
00:14:22,759 --> 00:14:21,269
commodity lines installed the thrust

359
00:14:26,570 --> 00:14:22,769
vector control system checked out

360
00:14:28,730 --> 00:14:26,580
through a very cold night last night and

361
00:14:32,300 --> 00:14:28,740
then end of the day with the final

362
00:14:34,579 --> 00:14:32,310
combined systems testing and the final

363
00:14:37,009 --> 00:14:34,589

closeouts and ready reading the the

364
00:14:39,079 --> 00:14:37,019
rocker for launch so pending you know

365
00:14:41,240 --> 00:14:39,089
the successful completion of our clothes

366
00:14:43,130 --> 00:14:41,250
out activities today will be ready to go

367
00:14:46,430 --> 00:14:43,140
for launch tomorrow morning or tomorrow

368
00:14:49,130 --> 00:14:46,440
I guess it's 132 so tomorrow afternoon

369
00:14:51,199 --> 00:14:49,140
the team will be in early like we were

370
00:14:54,740 --> 00:14:51,209
on station around 5-530 in the morning

371
00:14:57,259 --> 00:14:54,750
to to get ready for a launch just after

372
00:15:01,610 --> 00:14:57,269
lunch time and with that handed over to

373
00:15:04,100 --> 00:15:01,620
sara's here thank you so the Wallops

374
00:15:06,949 --> 00:15:04,110
launch range here is responsible for

375
00:15:09,590 --> 00:15:06,959
ensuring a safe flight of the vehicle

376
00:15:12,350 --> 00:15:09,600
and a clear path for the Antares to

377
00:15:15,740 --> 00:15:12,360
launch through and so earlier today we

378
00:15:17,930 --> 00:15:15,750
had a launch readiness review now our

379
00:15:20,600 --> 00:15:17,940
final review before we proceed into

380
00:15:23,680 --> 00:15:20,610
those launch operations if you go to my

381
00:15:26,510 --> 00:15:23,690
first graphic here I'll talk about our

382
00:15:31,130 --> 00:15:26,520
Wallops launch range support so we have

383
00:15:34,280 --> 00:15:31,140
a host of radars and telemetry antennas

384
00:15:36,170 --> 00:15:34,290
and command antennas as well as many

385
00:15:39,050 --> 00:15:36,180
other types of instrumentation that will

386
00:15:41,690 --> 00:15:39,060
be supporting the launch here locally at

387
00:15:45,340 --> 00:15:41,700
Wallops and then also at our downrange

388
00:15:49,040 --> 00:15:45,350

site in Bermuda all of those

389
00:15:53,449 --> 00:15:49,050
instrumentation pieces have been tested

390
00:15:56,420 --> 00:15:53,459
verified configured and validated ready

391
00:16:03,050 --> 00:15:56,430
for to support the launch operation

392
00:16:05,510 --> 00:16:03,060
tomorrow afternoon my next item that I

393
00:16:09,019 --> 00:16:05,520
wanted to talk about is the safe flight

394
00:16:13,639 --> 00:16:09,029
that I mentioned earlier we have also

395
00:16:18,019 --> 00:16:13,649
worked with the FAA with the US Navy

396
00:16:20,150 --> 00:16:18,029
fake capes and the US Coast Guard to put

397
00:16:23,210 --> 00:16:20,160
out our notices to Airmen and notice to

398
00:16:25,999 --> 00:16:23,220
Mariners for the launch operations

399
00:16:28,819 --> 00:16:26,009
tomorrow and throughout the week if we

400
00:16:30,980 --> 00:16:28,829
need that to ensure that the ocean space

401
00:16:34,759 --> 00:16:30,990
and air space is clear for launch

402
00:16:37,780 --> 00:16:34,769
operations my next graphic moving into

403
00:16:40,850 --> 00:16:37,790
the weather which I think everyone is

404
00:16:46,249 --> 00:16:40,860
patiently waiting to see so this is our

405
00:16:48,499 --> 00:16:46,259
weather forecast for tomorrow currently

406
00:16:50,900 --> 00:16:48,509
at launch time we're predicting that be

407
00:16:54,829 --> 00:16:50,910
mostly sunny the winds will kind of be

408
00:16:57,579 --> 00:16:54,839
out of the Southwest very light for us

409
00:17:00,889 --> 00:16:57,589
being right off the Atlantic Ocean here

410
00:17:05,029 --> 00:17:00,899
temperature still very chilly in the low

411
00:17:06,860 --> 00:17:05,039
30s and with all of that our probability

412
00:17:09,289 --> 00:17:06,870
of a favorable launch conditions

413
00:17:11,299 --> 00:17:09,299

tomorrow are up at ninety-five percent

414
00:17:14,240 --> 00:17:11,309
so tomorrow looks like a very good

415
00:17:18,919 --> 00:17:14,250
weather day for our launch operations

416
00:17:21,710 --> 00:17:18,929
here and are my last graphic that I have

417
00:17:24,769 --> 00:17:21,720
will just show with the nice weather

418
00:17:28,880 --> 00:17:24,779
conditions and with the size of this

419
00:17:31,760 --> 00:17:28,890
rocket the visibility of it during the

420
00:17:34,340 --> 00:17:31,770
day tomorrow so you can see viewers all

421
00:17:36,860 --> 00:17:34,350
along the east coast there will have a

422
00:17:40,370 --> 00:17:36,870
chance to catch a glimpse of it in the

423
00:17:43,399 --> 00:17:40,380
sky when we do launch tomorrow in the

424
00:17:46,549 --> 00:17:43,409
early afternoon and with that I'll turn

425
00:17:48,230 --> 00:17:46,559
it back over to sir ok let's take

426
00:17:49,279 --> 00:17:48,240
questions we'll start here in the

427
00:17:50,779 --> 00:17:49,289
audience and we'll go to the phone lines

428
00:17:52,200 --> 00:17:50,789
reminder if you're watching from home

429
00:17:53,220 --> 00:17:52,210
you can use the hashtag

430
00:17:55,730 --> 00:17:53,230
ask NASA and we'll get to as many

431
00:18:01,710 --> 00:17:55,740
questions as we can let's start here

432
00:18:03,870 --> 00:18:01,720
Doug moni team got Doug moni TMC at two

433
00:18:07,610 --> 00:18:03,880
questions for Frank number one how many

434
00:18:10,080 --> 00:18:07,620
do-overs does NASA get for for pausing a

435
00:18:11,880 --> 00:18:10,090
particular launched under contract it's

436
00:18:13,860 --> 00:18:11,890
got to cost you some money to roll back

437
00:18:16,350 --> 00:18:13,870
the rock it back and forth each time

438
00:18:18,690 --> 00:18:16,360

well how much money do we give to NASA

439
00:18:20,549 --> 00:18:18,700
did you say no no how many times all

440
00:18:23,730 --> 00:18:20,559
right how many how many times within the

441
00:18:26,639 --> 00:18:23,740
contract does NASA get a do-over or a

442
00:18:28,529 --> 00:18:26,649
pause or stop because that's not

443
00:18:31,169 --> 00:18:28,539
specified in the contract it's a fixed

444
00:18:34,889 --> 00:18:31,179
price contract and so if we incur

445
00:18:36,330 --> 00:18:34,899
additional costs due to NASA changing

446
00:18:37,980 --> 00:18:36,340
requirements or changing schedule

447
00:18:39,810 --> 00:18:37,990
whatever then we would go back and

448
00:18:43,649 --> 00:18:39,820
negotiate with them what the who would

449
00:18:45,720 --> 00:18:43,659
bear that cost but it's not set a

450
00:18:48,590 --> 00:18:45,730
specific number of times in the contract

451
00:18:51,060 --> 00:18:48,600
the second question can you contrast

452
00:18:52,649 --> 00:18:51,070
cold weather we're having here with some

453
00:18:55,230 --> 00:18:52,659
of the other launch sites around the

454
00:18:56,610 --> 00:18:55,240
world i mean florida might not be too

455
00:18:58,560 --> 00:18:56,620
happy with this type of weather but it

456
00:19:02,970 --> 00:18:58,570
bakken or they're probably laughing at

457
00:19:04,620 --> 00:19:02,980
us because it's too warm well you said

458
00:19:07,529 --> 00:19:04,630
it i canno it gets even colder than this

459
00:19:09,389 --> 00:19:07,539
and they still launch Florida hasn't

460
00:19:11,639 --> 00:19:09,399
launched very often in cold weather and

461
00:19:13,680 --> 00:19:11,649
it hasn't always gone well so they're

462
00:19:16,139 --> 00:19:13,690
used to the temperate and hot

463
00:19:18,049 --> 00:19:16,149

temperatures for launching down there we

464
00:19:21,930 --> 00:19:18,059
designed the rocket to operate down to

465
00:19:23,340 --> 00:19:21,940
at least 20 degrees Fahrenheit and so we

466
00:19:26,000 --> 00:19:23,350
feel comfortable that we can operate in

467
00:19:28,649 --> 00:19:26,010
these conditions the extended

468
00:19:29,909 --> 00:19:28,659
sub-freezing temperatures or something

469
00:19:31,680 --> 00:19:29,919
we look at very carefully to make sure

470
00:19:33,480 --> 00:19:31,690
we understand what the impact of that is

471
00:19:35,909 --> 00:19:33,490
and so will we will look at the

472
00:19:37,230 --> 00:19:35,919
temperature profile over the 48 hours

473
00:19:39,210 --> 00:19:37,240
leading up to launch to make sure we're

474
00:19:41,490 --> 00:19:39,220
comfortable from an analysis standpoint

475
00:19:42,810 --> 00:19:41,500
with with proceeding but so far

476
00:19:45,149 --> 00:19:42,820
everything looks good was like do you

477
00:19:47,789 --> 00:19:45,159
want to add to that no I you know I

478
00:19:50,399 --> 00:19:47,799
think the the cold temperatures and the

479
00:19:51,539 --> 00:19:50,409
extended cold temperatures you know

480
00:19:55,110 --> 00:19:51,549
definitely present some unique

481
00:19:56,850 --> 00:19:55,120
challenges to us as far as controlling

482
00:20:00,120 --> 00:19:56,860
the temperatures of critical components

483
00:20:02,250 --> 00:20:00,130
but you'll note that the fairing the the

484
00:20:04,680 --> 00:20:02,260
aft Bay the entertained a were all the

485
00:20:06,810 --> 00:20:04,690
the critical components those are all

486
00:20:09,090 --> 00:20:06,820
conditioned it's really a challenge of

487
00:20:11,340 --> 00:20:09,100
making sure the the air conditioning

488
00:20:13,799 --> 00:20:11,350

systems can keep up with the weather and

489
00:20:15,210 --> 00:20:13,809
keep those components that they're you

490
00:20:18,090 --> 00:20:15,220
know temperatures there within their

491
00:20:19,470 --> 00:20:18,100
qualified design constraints so so far

492
00:20:21,000 --> 00:20:19,480
you know for the most part that's gone

493
00:20:24,510 --> 00:20:21,010
well we're looking at a couple of things

494
00:20:26,490 --> 00:20:24,520
over the course of today but expecting

495
00:20:28,350 --> 00:20:26,500
good results from that and you know

496
00:20:30,419 --> 00:20:28,360
actually tomorrow will be a little the

497
00:20:33,029 --> 00:20:30,429
less challenging day than today was and

498
00:20:35,070 --> 00:20:33,039
if you know if it things go the way

499
00:20:36,930 --> 00:20:35,080
they're predicted to go we're feeling

500
00:20:38,940 --> 00:20:36,940
pretty good that we've got we've got

501
00:20:40,799 --> 00:20:38,950
control of the situation the other

502
00:20:44,129 --> 00:20:40,809
aspect we made a lot of attention to was

503
00:20:45,930 --> 00:20:44,139
crew safety ground crew safety and last

504
00:20:47,549 --> 00:20:45,940
night they had pretty high winds and

505
00:20:50,220 --> 00:20:47,559
very low temperatures so wind chill was

506
00:20:52,560 --> 00:20:50,230
a was a factor and so we had to make

507
00:20:53,789 --> 00:20:52,570
sure that people really did Willie were

508
00:20:57,210 --> 00:20:53,799
prepared to operate in those conditions

509
00:20:58,590 --> 00:20:57,220
and that we kept him warm and that we

510
00:21:00,690 --> 00:20:58,600
didn't push him to a pace that was

511
00:21:07,970 --> 00:21:00,700
unrealistic or unreasonable in those

512
00:21:18,200 --> 00:21:13,210
i Ken Kramer Universe Today question for

513
00:21:19,940 --> 00:21:18,210

Frank and I'm and probably Mike as you

514
00:21:22,430 --> 00:21:19,950
mentioned it's been a big week for Space

515
00:21:25,010 --> 00:21:22,440
Flight SpaceX just launched yesterday

516
00:21:28,400 --> 00:21:25,020
and there you're one of your biggest

517
00:21:31,190 --> 00:21:28,410
competitors and I wonder do you do you

518
00:21:33,440 --> 00:21:31,200
think you can compete with them on price

519
00:21:37,789 --> 00:21:33,450
are you going to be upgrading the

520
00:21:39,320 --> 00:21:37,799
Antares rocket in any way because you

521
00:21:41,690 --> 00:21:39,330
must be feeling a lot of heat from them

522
00:21:44,840 --> 00:21:41,700
and are you you were looking to get I

523
00:21:46,789 --> 00:21:44,850
know new customers when we talked at the

524
00:21:50,000 --> 00:21:46,799
September launch and give us an update

525
00:21:51,530 --> 00:21:50,010
on that Thanks sure yes I of course they

526
00:21:53,120 --> 00:21:51,540
are one of the competitors and they've

527
00:21:56,750 --> 00:21:53,130
been very successful in the last couple

528
00:21:58,700 --> 00:21:56,760
of years in developing new versions of

529
00:22:01,010 --> 00:21:58,710
their rocket we also working on new

530
00:22:03,770 --> 00:22:01,020
versions of our rocket and in fact by

531
00:22:05,270 --> 00:22:03,780
the fourth CRS mission we will have an

532
00:22:08,150 --> 00:22:05,280
upgraded version that will fly more

533
00:22:10,520 --> 00:22:08,160
payload we're also looking at long range

534
00:22:12,590 --> 00:22:10,530
of what the configuration of the of the

535
00:22:14,060 --> 00:22:12,600
Antares will be both of an engine

536
00:22:16,240 --> 00:22:14,070
standpoint and from upper stage

537
00:22:18,560 --> 00:22:16,250
standpoint so we've got plans in work

538
00:22:20,060 --> 00:22:18,570

that it's not appropriate for me to talk

539
00:22:21,919 --> 00:22:20,070
too much about them but we certainly

540
00:22:23,750 --> 00:22:21,929
looking at that and we are negotiating

541
00:22:27,140 --> 00:22:23,760
with people for other payloads besides

542
00:22:29,840 --> 00:22:27,150
the Cygnus spacecraft and identify more

543
00:22:33,500 --> 00:22:29,850
than just cargo a lot of Wallops here so

544
00:22:35,630 --> 00:22:33,510
we do have big plans for it and as I

545
00:22:38,419 --> 00:22:35,640
said SpaceX can should be congratulated

546
00:22:39,620 --> 00:22:38,429
on their on their launch another reason

547
00:22:41,030 --> 00:22:39,630
we were actually happy about that is

548
00:22:44,060 --> 00:22:41,040
because we built the space craft that

549
00:22:46,820 --> 00:22:44,070
flew on that the thaicom six and so we

550
00:22:48,860 --> 00:22:46,830
were very happy to see that that

551
00:22:51,590 --> 00:22:48,870
delivered to space and is performing

552
00:22:54,490 --> 00:22:51,600
very well orbital has a broad portfolio

553
00:22:57,169 --> 00:22:54,500
of business not just the launch

554
00:22:58,760 --> 00:22:57,179
operations that we conduct we built a

555
00:23:02,360 --> 00:22:58,770
lot of spacecraft with build national

556
00:23:07,000 --> 00:23:02,370
security systems and and we have lots of

557
00:23:09,790 --> 00:23:07,010
big plans for the future Terry

558
00:23:11,500 --> 00:23:09,800
thank you talk malik with the space calm

559
00:23:15,610 --> 00:23:11,510
and i have a question from like you

560
00:23:18,940 --> 00:23:15,620
mentioned the frigid temperatures at the

561
00:23:21,220 --> 00:23:18,950
pad and i'm wondering has you know has

562
00:23:22,570 --> 00:23:21,230
that cold made you kind of scale down

563
00:23:24,640 --> 00:23:22,580

the number of folks you have out there

564
00:23:25,960 --> 00:23:24,650
do they all go out there with you know

565
00:23:27,430 --> 00:23:25,970
hot chocolate and marshmallow something

566
00:23:29,980 --> 00:23:27,440
like that you know how have you been

567
00:23:32,110 --> 00:23:29,990
keeping them warm to keep to maintain

568
00:23:33,490 --> 00:23:32,120
the focus you need for launch given the

569
00:23:35,050 --> 00:23:33,500
last couple ones where we're going to do

570
00:23:37,360 --> 00:23:35,060
a more temperate time no marshmallows

571
00:23:40,480 --> 00:23:37,370
before you get yeah yeah keep keep the

572
00:23:42,310 --> 00:23:40,490
marshmallows off the pad you know it's

573
00:23:44,290 --> 00:23:42,320
it's you know it's frank said it's it's

574
00:23:45,700 --> 00:23:44,300
a combination of things you know we

575
00:23:47,170 --> 00:23:45,710
definitely are making sure they're

576
00:23:49,150 --> 00:23:47,180
outfitted with the right with the right

577
00:23:52,480 --> 00:23:49,160
clothes you know for example last night

578
00:23:54,190 --> 00:23:52,490
we had a we had a truck close by running

579
00:23:56,290 --> 00:23:54,200
with the heater going to make sure that

580
00:23:57,640 --> 00:23:56,300
the guys you know they weren't required

581
00:23:59,050 --> 00:23:57,650
to be out on the pad one hundred percent

582
00:24:00,810 --> 00:23:59,060
of the time so when they weren't there

583
00:24:02,740 --> 00:24:00,820
they were in a nice warm environment

584
00:24:05,740 --> 00:24:02,750
we're also making sure we're doing

585
00:24:09,040 --> 00:24:05,750
frequent you know crew shifts so that we

586
00:24:11,440 --> 00:24:09,050
can keep people cycling in and out of

587
00:24:12,850 --> 00:24:11,450
the cold and staying warm so you know

588
00:24:14,860 --> 00:24:12,860

i'd say it's presented a logistical

589
00:24:17,860 --> 00:24:14,870
challenge but but you know we've been

590
00:24:19,780 --> 00:24:17,870
able to successfully work through it you

591
00:24:22,030 --> 00:24:19,790
know and I've you know personally was

592
00:24:23,980 --> 00:24:22,040
was out there yesterday and you know the

593
00:24:26,350 --> 00:24:23,990
team was in good spirits and I think we

594
00:24:29,350 --> 00:24:26,360
were we were successful in keeping

595
00:24:32,170 --> 00:24:29,360
everybody warm and safe and no frostbite

596
00:24:34,780 --> 00:24:32,180
and you know we we did a team did a

597
00:24:39,010 --> 00:24:34,790
really good job managing that managing

598
00:24:45,460 --> 00:24:39,020
that particular challenge okay let's

599
00:24:49,779 --> 00:24:47,200
first question comes from twitter user

600
00:24:51,370 --> 00:24:49,789
tyler Waldrop how large of a window do

601
00:24:53,200 --> 00:24:51,380
you have before you have to recycle the

602
00:24:56,500 --> 00:24:53,210
payload timewise if you have to cancel

603
00:25:00,100 --> 00:24:56,510
tomorrow if we have to cancel tomorrow

604
00:25:03,250 --> 00:25:00,110
we can probably go two more times with a

605
00:25:05,529 --> 00:25:03,260
good chance of preserving most of the

606
00:25:07,570 --> 00:25:05,539
science if not all of it if we go beyond

607
00:25:10,180 --> 00:25:07,580
that we would have to talk to NASA about

608
00:25:11,649 --> 00:25:10,190
whether it was more critical to roll

609
00:25:13,450 --> 00:25:11,659
back and replace the payloads which

610
00:25:16,500 --> 00:25:13,460
would take a couple of weeks probably or

611
00:25:19,690 --> 00:25:16,510
whether we would just preclude

612
00:25:21,730 --> 00:25:19,700
conducting some of the experiments when

613
00:25:24,850 --> 00:25:21,740

we can we can launch quite a bit later

614
00:25:27,010 --> 00:25:24,860
than this week from an operation

615
00:25:30,399 --> 00:25:27,020
standpoint and the spacecraft can loiter

616
00:25:32,380 --> 00:25:30,409
for a long time before we have to have

617
00:25:34,990 --> 00:25:32,390
to rendezvous with the station but the

618
00:25:39,070 --> 00:25:35,000
science experiments are what are driving

619
00:25:41,529 --> 00:25:39,080
our schedule right now next question

620
00:25:43,779 --> 00:25:41,539
comes from twitter user marsha smith why

621
00:25:45,700 --> 00:25:43,789
do frigid temps require a launch delay

622
00:25:47,549 --> 00:25:45,710
what specifically is affected and what

623
00:25:52,690 --> 00:25:47,559
is the temperature threshold for launch

624
00:25:54,220 --> 00:25:52,700
hi Marcia the temperatures affect a

625
00:25:55,600 --> 00:25:54,230
number of pieces of equipment and I'll

626
00:25:58,779 --> 00:25:55,610
let Mike get a little more specific

627
00:26:00,460 --> 00:25:58,789
about that but we have to pay a lot of

628
00:26:03,549 --> 00:26:00,470
attention to precipitation in

629
00:26:05,409 --> 00:26:03,559
conjunction with the low temperatures if

630
00:26:07,180 --> 00:26:05,419
we have ice form around any of the

631
00:26:10,810 --> 00:26:07,190
structure we have to worry about whether

632
00:26:12,760 --> 00:26:10,820
it's getting into crevices or interfaces

633
00:26:15,970 --> 00:26:12,770
and causing expansion or whether it's

634
00:26:18,100 --> 00:26:15,980
going to cause a debris problem on the

635
00:26:20,110 --> 00:26:18,110
pad when we ignite the rocket or cause

636
00:26:21,850 --> 00:26:20,120
hazardous operations for the people that

637
00:26:23,289 --> 00:26:21,860
are trying to work around the rocket and

638
00:26:25,600 --> 00:26:23,299

Mike I'm sure wants to elaborate on

639
00:26:28,960 --> 00:26:25,610
there why just maybe just a little bit

640
00:26:30,730 --> 00:26:28,970
you know we we have we have design

641
00:26:32,830 --> 00:26:30,740
constraints pretty much for every

642
00:26:33,850 --> 00:26:32,840
component on on the vehicle that you

643
00:26:37,090 --> 00:26:33,860
know based on where it's been designed

644
00:26:38,230 --> 00:26:37,100
analyzed and tested to operate as I

645
00:26:39,820 --> 00:26:38,240
mentioned previously we've got

646
00:26:42,310 --> 00:26:39,830
environmental control systems that

647
00:26:45,220 --> 00:26:42,320
control the temperatures inside the the

648
00:26:47,670 --> 00:26:45,230
critical cavities inside the rocket and

649
00:26:49,620 --> 00:26:47,680
we've got instrumentation all over

650
00:26:51,810 --> 00:26:49,630
that allow us to you know see where

651
00:26:53,520 --> 00:26:51,820
those temperatures are relative to you

652
00:26:56,700 --> 00:26:53,530
know where those launch constraints are

653
00:26:59,280 --> 00:26:56,710
so you know the to the specific question

654
00:27:01,740 --> 00:26:59,290
I think the most critical and we're

655
00:27:03,930 --> 00:27:01,750
monitoring is is a 20 degree ambient

656
00:27:06,300 --> 00:27:03,940
constraint that we've got that's based

657
00:27:08,700 --> 00:27:06,310
on some of our you know fairing

658
00:27:10,050 --> 00:27:08,710
separation components and again it's

659
00:27:12,120 --> 00:27:10,060
based on where those components were

660
00:27:14,400 --> 00:27:12,130
designed and tested there are other

661
00:27:16,230 --> 00:27:14,410
constraints that are you know less about

662
00:27:19,230 --> 00:27:16,240
the ambien environment and more about

663
00:27:21,150 --> 00:27:19,240

how our environmental control systems

664
00:27:23,130 --> 00:27:21,160
are controlling the internal environment

665
00:27:26,300 --> 00:27:23,140
inside the fairing but there's a lot of

666
00:27:29,430 --> 00:27:26,310
them and we're looking at all of them

667
00:27:31,440 --> 00:27:29,440
Robert hi Robert gremlin with

668
00:27:33,660 --> 00:27:31,450
collectspace.com with a question for

669
00:27:36,840 --> 00:27:33,670
Frank I know you've named the spacecraft

670
00:27:39,000 --> 00:27:36,850
for Gordon Fullerton is his family here

671
00:27:42,840 --> 00:27:39,010
for the launch and can you talk a little

672
00:27:45,090 --> 00:27:42,850
bit about why the why honor him in this

673
00:27:47,600 --> 00:27:45,100
way yeah thanks for asking that Robert I

674
00:27:50,220 --> 00:27:47,610
should have mentioned that in my remarks

675
00:27:52,830 --> 00:27:50,230
we did mention earlier press conference

676
00:27:54,900 --> 00:27:52,840
but yes this one in the tradition we

677
00:27:57,960 --> 00:27:54,910
established with the first demo mission

678
00:28:00,090 --> 00:27:57,970
has been named in honor of see Gordon

679
00:28:03,560 --> 00:28:00,100
Fullerton gordo as many of us know him

680
00:28:07,260 --> 00:28:03,570
who passed away within the last year

681
00:28:10,830 --> 00:28:07,270
gordo was a longtime astronaut flew in

682
00:28:13,110 --> 00:28:10,840
space three times and also was a test

683
00:28:15,570 --> 00:28:13,120
pilot at Dryden and one of his tasks

684
00:28:19,200 --> 00:28:15,580
there was to fly the b-52 and dropped a

685
00:28:21,300 --> 00:28:19,210
variety of launch vehicles and and test

686
00:28:24,540 --> 00:28:21,310
vehicles off of the pylon on the bottom

687
00:28:26,730 --> 00:28:24,550
of that the Pegasus rocket was knit was

688
00:28:29,820 --> 00:28:26,740

orbitals first commercial venture into

689
00:28:32,940 --> 00:28:29,830
launching payloads into space and it was

690
00:28:35,820 --> 00:28:32,950
deployed from the b-52 and the and the

691
00:28:39,360 --> 00:28:35,830
pilot for that that mission was Gordo

692
00:28:41,160 --> 00:28:39,370
and so it's and many of our missions and

693
00:28:43,960 --> 00:28:41,170
so we had a long time long-term

694
00:28:45,730 --> 00:28:43,970
relationship with with with Gordon

695
00:28:48,310 --> 00:28:45,740
and he was very important to the company

696
00:28:52,240 --> 00:28:48,320
of many people knew him well so we knew

697
00:28:54,550 --> 00:28:52,250
him and Marie Gordo was actually very

698
00:28:56,800 --> 00:28:54,560
happy when we transitioned from the b-52

699
00:28:58,930 --> 00:28:56,810
to the l-1011 because they didn't have

700
00:29:02,020 --> 00:28:58,940
to fly the heavy he could fly f-18 chase

701
00:29:05,200 --> 00:29:02,030
plane have a lot more fun and he was a

702
00:29:09,610 --> 00:29:05,210
great pilot we had his family visit us

703
00:29:12,460 --> 00:29:09,620
last November and exchanged a number of

704
00:29:14,440 --> 00:29:12,470
items with them and also had gave them a

705
00:29:18,760 --> 00:29:14,450
chance to see what orbital does and why

706
00:29:20,070 --> 00:29:18,770
we were honoring or their Gordo and they

707
00:29:21,790 --> 00:29:20,080
are not able to be here today

708
00:29:24,580 --> 00:29:21,800
unfortunately but I know that they're

709
00:29:26,350 --> 00:29:24,590
watching and I want to send my best

710
00:29:29,590 --> 00:29:26,360
wishes to them and tell them we're going

711
00:29:34,810 --> 00:29:29,600
to take very good care of the SS see

712
00:29:36,970 --> 00:29:34,820
Gordon Fullerton so while we do a quick

713
00:29:42,130 --> 00:29:36,980

check for phone questions do we have

714
00:29:44,710 --> 00:29:42,140
anything else from social media Twitter

715
00:29:46,900 --> 00:29:44,720
user a queue astronomy asks will the

716
00:29:49,690 --> 00:29:46,910
current s1 radiation storm in Flare

717
00:29:54,160 --> 00:29:49,700
activity around sunspot 1944 calls

718
00:29:58,830 --> 00:29:54,170
issues for the launch tomorrow I don't

719
00:30:04,690 --> 00:30:03,160
either we we do monitor that we do

720
00:30:06,610 --> 00:30:04,700
monitor solar weather is one of our

721
00:30:08,590 --> 00:30:06,620
constraints and at this point we're not

722
00:30:11,500 --> 00:30:08,600
seeing anything that's violating our our

723
00:30:13,030 --> 00:30:11,510
launch criteria dr. dan Hartman in

724
00:30:18,360 --> 00:30:13,040
Houston can probably asked answer that

725
00:30:22,450 --> 00:30:18,370
better for us ISS monitors at tight as

726
00:30:25,300 --> 00:30:22,460
yeah we monitor that almost out we get

727
00:30:28,150 --> 00:30:25,310
we get reports in fact it was part of

728
00:30:30,760 --> 00:30:28,160
our go no-go criteria yesterday at our

729
00:30:32,920 --> 00:30:30,770
I'm and T radiation looks good right now

730
00:30:37,210 --> 00:30:32,930
so so far we're not tracking any

731
00:30:39,700 --> 00:30:37,220
problems with that kara was expecting a

732
00:30:42,040 --> 00:30:39,710
polar vortex question again so just

733
00:30:43,290 --> 00:30:42,050
never know is you're going to get any

734
00:30:49,860 --> 00:30:43,300
other questions here in the audience

735
00:30:54,530 --> 00:30:52,320
I just want to follow up on exactly what

736
00:30:57,270 --> 00:30:54,540
the scrub turnaround conditions are

737
00:30:58,890 --> 00:30:57,280
could you launch the next day I think it

738
00:31:01,350 --> 00:30:58,900

depends somewhat on how close you get

739
00:31:05,340 --> 00:31:01,360
down to them yeah countdown I think in

740
00:31:08,370 --> 00:31:05,350
in to keep it simple if we were to scrub

741
00:31:10,500 --> 00:31:08,380
any time before t minus 10 minutes we

742
00:31:13,710 --> 00:31:10,510
should have an ability to turn around in

743
00:31:15,990 --> 00:31:13,720
24 hours inside of ten minutes it can

744
00:31:18,900 --> 00:31:16,000
get dicey depending on how much of

745
00:31:20,940 --> 00:31:18,910
certain commodities we consume but you

746
00:31:23,250 --> 00:31:20,950
know we have tankers on the standby and

747
00:31:25,140 --> 00:31:23,260
there's still opportunity for 24 hour

748
00:31:28,110 --> 00:31:25,150
turnaround it's just you know it becomes

749
00:31:30,240 --> 00:31:28,120
dependent on actual events and what it

750
00:31:32,070 --> 00:31:30,250
takes to D tank and what happens in that

751
00:31:34,230 --> 00:31:32,080
process as to whether we can actually

752
00:31:35,820 --> 00:31:34,240
get there not but before t minus 10

753
00:31:37,020 --> 00:31:35,830
minutes we have every expectation that

754
00:31:44,690 --> 00:31:37,030
we'd be able to turn around the next day

755
00:31:49,610 --> 00:31:47,250
thank you a talk malik again from space

756
00:31:52,200 --> 00:31:49,620
com for I think I'm follow-up for Frank

757
00:31:53,550 --> 00:31:52,210
last month as we were leading up to this

758
00:31:55,620 --> 00:31:53,560
launch I had a chance to speak with

759
00:31:57,660 --> 00:31:55,630
British Tokyo on the space station he

760
00:32:00,150 --> 00:31:57,670
mentioned he was really looking forward

761
00:32:01,650 --> 00:32:00,160
to the arrival of sickness because on

762
00:32:03,180 --> 00:32:01,660
top of all the great science and stuff

763
00:32:04,950 --> 00:32:03,190

it was going to have some clothes and

764
00:32:06,300 --> 00:32:04,960
some goodies and maybe even some

765
00:32:09,960 --> 00:32:06,310
Christmas presents on board I'm

766
00:32:12,170 --> 00:32:09,970
wondering if the orbital crew or you've

767
00:32:14,580 --> 00:32:12,180
had any any instruction from NASA to

768
00:32:17,490 --> 00:32:14,590
refresh those presents of those extra

769
00:32:19,920 --> 00:32:17,500
things new year's stuff on board for

770
00:32:23,540 --> 00:32:19,930
this flight Thanks well we haven't

771
00:32:28,080 --> 00:32:26,430
now there are some some surprises for

772
00:32:29,580 --> 00:32:28,090
the crew on board and we have a few

773
00:32:31,350 --> 00:32:29,590
traditional things and then NASA s

774
00:32:33,390 --> 00:32:31,360
actually had us load some fresh fruit

775
00:32:36,690 --> 00:32:33,400
farm in this last late load which

776
00:32:38,040 --> 00:32:36,700
they'll much appreciate I'm sure but but

777
00:32:40,530 --> 00:32:38,050
we didn't change out too much of the

778
00:32:44,850 --> 00:32:40,540
special things we think they'll enjoy

779
00:32:49,980 --> 00:32:44,860
them anyway hey I just got a tweet this

780
00:32:52,310 --> 00:32:49,990
is from at Elvis in space and he asked

781
00:32:55,200 --> 00:32:52,320
can you tell us a little bit more about

782
00:32:57,800 --> 00:32:55,210
the journey of sickness from the launch

783
00:33:00,180 --> 00:32:57,810
pad to the International Space Station

784
00:33:01,470 --> 00:33:00,190
Elvis is in charge of our operation some

785
00:33:05,890 --> 00:33:01,480
a little bit disturbed that he's asking

786
00:33:12,140 --> 00:33:09,400
but we do have a video that I think will

787
00:33:14,690 --> 00:33:12,150
show a little bit about our trip to

788
00:33:16,460 --> 00:33:14,700

space and if we could roll that if I

789
00:33:21,700 --> 00:33:16,470
didn't catch you too much by surprise I

790
00:33:27,140 --> 00:33:24,289
mark your mouth 5-inch accountant friend

791
00:33:29,930 --> 00:33:27,150
is green factory mba de this is the

792
00:33:32,780 --> 00:33:29,940
video from our demolition go and oreo

793
00:33:35,480 --> 00:33:32,790
sickness it was quite an exciting time

794
00:33:38,510 --> 00:33:35,490
to get this close and see the countdown

795
00:33:41,330 --> 00:33:38,520
go so smoothly the end is ignited he

796
00:33:44,600 --> 00:33:41,340
lifted off the pad majestically at same

797
00:33:46,610 --> 00:33:44,610
time thompson center at the GTA das and

798
00:33:49,520 --> 00:33:46,620
accelerate slowly at first but then

799
00:33:51,799 --> 00:33:49,530
eventually gaining on us to me a great

800
00:33:53,150 --> 00:33:51,809
user in the rocket cam as we depart of

801
00:33:55,430 --> 00:33:53,160
the Eastern Shore of Virginia you can

802
00:33:59,590 --> 00:33:55,440
see Wallops Island beneath us there and

803
00:34:01,820 --> 00:33:59,600
the other lost facilities that are there

804
00:34:04,909 --> 00:34:01,830
it was a very smooth ride for sickness

805
00:34:08,060 --> 00:34:04,919
and went pretty much right on the money

806
00:34:13,070 --> 00:34:08,070
and entire vehicle did exactly what we

807
00:34:15,200 --> 00:34:13,080
expected it to during burns for about

808
00:34:19,159 --> 00:34:15,210
four minutes three on the first day on

809
00:34:21,800 --> 00:34:19,169
the first stage and then during its into

810
00:34:24,139 --> 00:34:21,810
the flight and then another five minutes

811
00:34:27,220 --> 00:34:24,149
I think again about stage two before

812
00:34:29,899 --> 00:34:27,230
they get to pay load delivered launch

813
00:34:33,440 --> 00:34:29,909

and the end once we were in orbit we

814
00:34:35,510 --> 00:34:33,450
went through a number of tell with a few

815
00:34:38,210 --> 00:34:35,520
challenges actually and then had to wait

816
00:34:40,879 --> 00:34:38,220
for the Soyuz to to talk before we could

817
00:34:42,200 --> 00:34:40,889
approach but once we did it was a rock

818
00:34:44,629 --> 00:34:42,210
solid

819
00:34:46,730 --> 00:34:44,639
up the arm bar as we approach the

820
00:34:51,500 --> 00:34:46,740
station and the crewmen air-to-ground

821
00:34:53,659 --> 00:34:51,510
was the hour GNC team is Frank tomorrow

822
00:34:58,370 --> 00:34:53,669
in the back guy with his touchdown dance

823
00:35:00,650 --> 00:34:58,380
and the team was very excited to to

824
00:35:04,849 --> 00:35:00,660
seasickness finally grappled and now

825
00:35:07,400 --> 00:35:04,859
it's NASA's problem as somebody said but

826
00:35:08,690 --> 00:35:07,410
NASA the crew did a great job of Luca

827
00:35:12,020 --> 00:35:08,700
and the folks did a great job of

828
00:35:13,339 --> 00:35:12,030
attaching it to the node to they really

829
00:35:15,620 --> 00:35:13,349
wanted to get in that do it the first

830
00:35:17,329 --> 00:35:15,630
day but finally the second day we NASA

831
00:35:19,130 --> 00:35:17,339
let him open the hatch and they were

832
00:35:22,250 --> 00:35:19,140
able to get inside and see the cargo and

833
00:35:23,780 --> 00:35:22,260
the few little gifts that we had and the

834
00:35:26,109 --> 00:35:23,790
chocolate of course which is a big

835
00:35:29,690 --> 00:35:26,119
favorite that we had provided for them

836
00:35:32,740 --> 00:35:29,700
that's a picture of our team that worked

837
00:35:34,579 --> 00:35:32,750
on the sickness the development

838
00:35:37,339 --> 00:35:34,589

integration and test and their

839
00:35:38,599 --> 00:35:37,349
signatures that flew in space and we may

840
00:35:40,460 --> 00:35:38,609
get that back down here on earth someday

841
00:35:44,510 --> 00:35:40,470
and display it in the company we hope it

842
00:35:47,870 --> 00:35:44,520
comes back after 23 days I think it was

843
00:35:50,450 --> 00:35:47,880
on orbit we on we're on birthed and

844
00:35:53,060 --> 00:35:50,460
released from the space station and the

845
00:35:55,339 --> 00:35:53,070
next day re-entered the atmosphere above

846
00:35:57,589 --> 00:35:55,349
the Pacific just north of New Zealand

847
00:36:00,290 --> 00:35:57,599
and burned up on re-entry and disposed

848
00:36:02,900 --> 00:36:00,300
of the cargo as we were supposed to so a

849
00:36:05,660 --> 00:36:02,910
very successful mission and very proud

850
00:36:07,220 --> 00:36:05,670
of what the team has done we expect

851
00:36:09,620 --> 00:36:07,230
something similar this time we could be

852
00:36:11,780 --> 00:36:09,630
on orbit anywhere between 30 and 45 days

853
00:36:14,270 --> 00:36:11,790
this time depending on the schedule but

854
00:36:15,829 --> 00:36:14,280
they know we know that the crew and the

855
00:36:18,020 --> 00:36:15,839
program want to fill it up with as much

856
00:36:18,990 --> 00:36:18,030
disposal cargo as they can so we're

857
00:36:22,770 --> 00:36:19,000
prepared to

858
00:36:26,150 --> 00:36:22,780
do that any other questions I don't mean

859
00:36:28,110 --> 00:36:26,160
to take over your job please please

860
00:36:29,670 --> 00:36:28,120
sounds like that'll do that's a perfect

861
00:36:30,810 --> 00:36:29,680
note to end on a look ahead to so many

862
00:36:32,670 --> 00:36:30,820
things we can expect with launch

863
00:36:35,220 --> 00:36:32,680

tomorrow and the operations that will

864
00:36:36,810 --> 00:36:35,230
take us through a Sunday birthing of the

865
00:36:37,950 --> 00:36:36,820
orbital one mission again you can find

866
00:36:42,990 --> 00:36:37,960
out more information to follow the

867
00:36:44,940 --> 00:36:43,000
mission at wwsd gov / station please

868
00:36:53,180 --> 00:36:44,950
help me thank our panelists for their