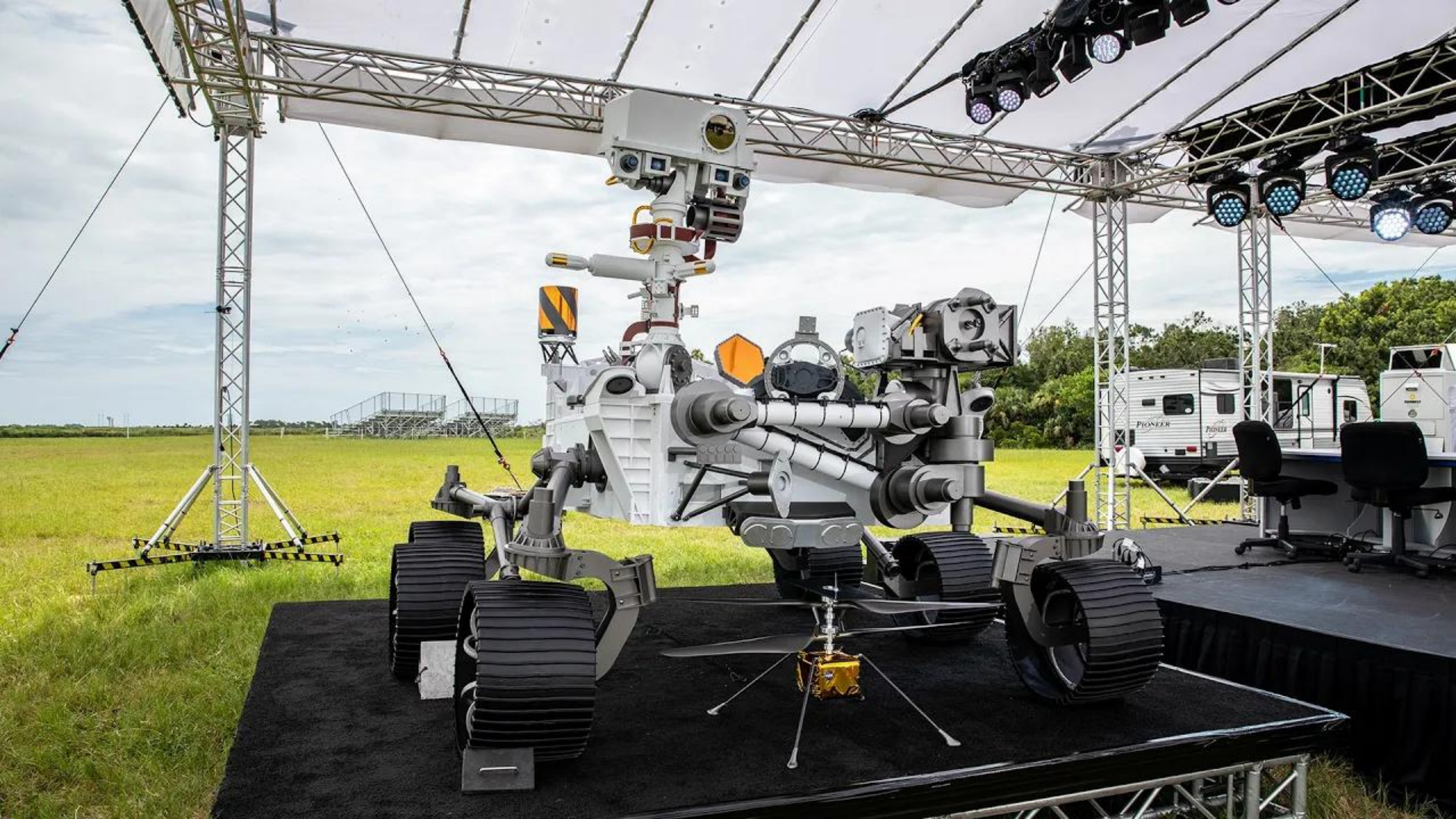

1
00:01:39,830 --> 00:01:37,830
why we explore mars

2
00:01:42,389 --> 00:01:39,840
the mysteries of the red planet the

3
00:01:44,469 --> 00:01:42,399
history of water the possibilities of

4
00:01:46,149 --> 00:01:44,479
life you learn something and then you

5
00:01:49,030 --> 00:01:46,159
design the next mission based on what

6
00:01:52,950 --> 00:01:49,040
you learn has allowed us to literally go

7
00:01:57,749 --> 00:01:54,429
will cover an area mars

8
00:02:00,870 --> 00:01:57,759
176 miles mariner 4 began transmitting

9
00:02:03,270 --> 00:02:00,880
back images the first photograph that a

10
00:02:06,350 --> 00:02:03,280
human being has ever seen from the

11
00:02:09,190 --> 00:02:06,360
surface of another planet on august 20th

12
00:02:11,990 --> 00:02:09,200
1975 the first viking spaceship was

13
00:02:14,869 --> 00:02:12,000

launched you were seeing something that

14
00:02:23,510 --> 00:02:14,879
no other human has ever seen before

15
00:02:28,150 --> 00:02:25,589
that sense of wonderment and achievement

16
00:02:32,070 --> 00:02:28,160
and always working towards your goal

17
00:02:45,910 --> 00:02:32,080
we can do and we will do

18
00:02:50,869 --> 00:02:48,710
together we did it but the attitude was

19
00:02:53,270 --> 00:02:50,879
together we can do it

20
00:02:58,630 --> 00:02:53,280
the future is what you make out of it

21
00:03:03,509 --> 00:03:01,430
and here we are with mars perseverance

22
00:03:06,309 --> 00:03:03,519
51 years later getting ready to do the

23
00:03:08,309 --> 00:03:06,319
first ever mars return mission

24
00:03:10,390 --> 00:03:08,319
eventually we can bring those samples

25
00:03:11,589 --> 00:03:10,400
back to earth and determine for the very

26
00:03:20,790 --> 00:03:11,599
first time

27
00:03:24,229 --> 00:03:21,830
good day

28
00:03:26,229 --> 00:03:24,239
my name is janet petro and i'm the

29
00:03:27,589 --> 00:03:26,239
deputy director here at america's

30
00:03:30,149 --> 00:03:27,599
multi-user

31
00:03:31,509 --> 00:03:30,159
spaceport otherwise known as the kennedy

32
00:03:33,830 --> 00:03:31,519
space center

33
00:03:35,110 --> 00:03:33,840
when we started 2020 we knew we were

34
00:03:37,509 --> 00:03:35,120
going to have a big year at the

35
00:03:39,670 --> 00:03:37,519
spaceport and i think the events and the

36
00:03:42,470 --> 00:03:39,680
milestones of the next couple days are

37
00:03:44,390 --> 00:03:42,480
really going to demonstrate that

38
00:03:47,110 --> 00:03:44,400

you know i got to give a shout out to

39
00:03:49,110 --> 00:03:47,120
jpl who designed and built the

40
00:03:51,110 --> 00:03:49,120
perseverance spacecraft

41
00:03:53,350 --> 00:03:51,120
but i also want to say how incredibly

42
00:03:55,270 --> 00:03:53,360
proud i am that the launch services

43
00:03:57,589 --> 00:03:55,280
program that we house here at the

44
00:03:59,670 --> 00:03:57,599
kennedy space center and is going to be

45
00:04:02,789 --> 00:03:59,680
managing the launch of this spacecraft

46
00:04:04,390 --> 00:04:02,799
and the ula rocket tomorrow

47
00:04:06,710 --> 00:04:04,400
is located right here at the kennedy

48
00:04:09,190 --> 00:04:06,720
space center you know this is uh the

49
00:04:12,229 --> 00:04:09,200
11th mission that our launch services

50
00:04:14,710 --> 00:04:12,239
support program has launched to the

51
00:04:16,310 --> 00:04:14,720
planet of mars and so the the orbiters

52
00:04:18,390 --> 00:04:16,320
that are there and the rovers that are

53
00:04:20,710 --> 00:04:18,400
there was part of what our launch

54
00:04:23,830 --> 00:04:20,720
services program provided so we're

55
00:04:26,230 --> 00:04:23,840
incredibly excited to uh be able to be

56
00:04:27,830 --> 00:04:26,240
here at the launch event tomorrow and

57
00:04:30,310 --> 00:04:27,840
i'd like to go ahead and introduce our

58
00:04:34,150 --> 00:04:30,320
administrator uh mr bridenstine to say a

59
00:04:39,510 --> 00:04:36,550
well thank you janet and it is fantastic

60
00:04:41,189 --> 00:04:39,520
to be here at the kennedy space center

61
00:04:44,230 --> 00:04:41,199
which of course is a

62
00:04:47,670 --> 00:04:44,240
um it's a it's a historic and and

63
00:04:50,150 --> 00:04:47,680

and storied agency or uh center here um

64
00:04:51,749 --> 00:04:50,160
in central florida and uh to see all of

65
00:04:54,830 --> 00:04:51,759
these activities that are happening here

66
00:04:56,629 --> 00:04:54,840
again is is really remarkable i'm

67
00:04:58,870 --> 00:04:56,639
exceptionally

68
00:05:00,870 --> 00:04:58,880
excited about what we're about to do

69
00:05:03,110 --> 00:05:00,880
because we're going to launch mars 2020

70
00:05:05,270 --> 00:05:03,120
with the perseverance robot but there's

71
00:05:07,510 --> 00:05:05,280
so much more going on here

72
00:05:09,590 --> 00:05:07,520
she talked about the 11 previous

73
00:05:12,390 --> 00:05:09,600
launches to mars we've had this will be

74
00:05:13,670 --> 00:05:12,400
the ninth robot that we land on mars

75
00:05:15,670 --> 00:05:13,680
and when we think about what we've

76
00:05:18,710 --> 00:05:15,680
accomplished we have discovered

77
00:05:20,550 --> 00:05:18,720
that at one point in time liquid water

78
00:05:22,550 --> 00:05:20,560
was prevalent on mars in fact the

79
00:05:25,749 --> 00:05:22,560
northern hemisphere of mars was

80
00:05:27,430 --> 00:05:25,759
two-thirds covered in liquid water

81
00:05:29,350 --> 00:05:27,440
we know that

82
00:05:31,670 --> 00:05:29,360
back in those days about three billion

83
00:05:32,870 --> 00:05:31,680
years ago mars had a very thick

84
00:05:35,029 --> 00:05:32,880
atmosphere

85
00:05:36,870 --> 00:05:35,039
and we know that mars had a strong

86
00:05:39,189 --> 00:05:36,880
magnetosphere that protected it from the

87
00:05:41,590 --> 00:05:39,199
radiation of deep space we know these

88
00:05:43,189 --> 00:05:41,600

things because of previous missions with

89
00:05:45,830 --> 00:05:43,199
the mission that we currently have on

90
00:05:48,310 --> 00:05:45,840
mars curiosity we now know that the

91
00:05:50,870 --> 00:05:48,320
methane cycles of mars match the seasons

92
00:05:52,230 --> 00:05:50,880
of mars which could be an indicator it's

93
00:05:54,710 --> 00:05:52,240
not definite but it could be an

94
00:05:57,830 --> 00:05:54,720
indicator that life may very well still

95
00:05:59,430 --> 00:05:57,840
exist on mars today under its surface

96
00:06:01,430 --> 00:05:59,440
apart you know separated from the

97
00:06:03,189 --> 00:06:01,440
radiation of deep space

98
00:06:06,070 --> 00:06:03,199
we have also found

99
00:06:08,950 --> 00:06:06,080
uh what very well could be liquid water

100
00:06:11,270 --> 00:06:08,960
below the surface of mars again another

101
00:06:12,950 --> 00:06:11,280
amazing discovery about the potential of

102
00:06:16,230 --> 00:06:12,960
life on another world we're talking

103
00:06:19,029 --> 00:06:16,240
about microbial life here and because of

104
00:06:22,469 --> 00:06:19,039
curiosity we now know that mars is

105
00:06:25,110 --> 00:06:22,479
covered in complex organic compounds

106
00:06:26,629 --> 00:06:25,120
that don't exist on the moon at all

107
00:06:28,629 --> 00:06:26,639
they're all over earth and they're all

108
00:06:31,189 --> 00:06:28,639
over mars and of course those are the

109
00:06:33,110 --> 00:06:31,199
the fundamental building blocks of life

110
00:06:34,870 --> 00:06:33,120
and they're all over mars

111
00:06:36,870 --> 00:06:34,880
so this is the first time in history

112
00:06:39,270 --> 00:06:36,880
where we're going to go to mars with an

113
00:06:42,550 --> 00:06:39,280

explicit mission

114
00:06:45,430 --> 00:06:42,560
to find life on another world ancient

115
00:06:47,430 --> 00:06:45,440
life on mars are we going to be able to

116
00:06:50,230 --> 00:06:47,440
do that we don't know we don't know if

117
00:06:52,550 --> 00:06:50,240
life existed there or not but we do know

118
00:06:54,629 --> 00:06:52,560
that mars at one point in its history

119
00:06:56,230 --> 00:06:54,639
was habitable we don't know that it was

120
00:06:58,629 --> 00:06:56,240
inhabited but we know that it was

121
00:07:01,350 --> 00:06:58,639
habitable and now we're actually no

122
00:07:03,749 --> 00:07:01,360
kidding gonna do an astrobiology mission

123
00:07:04,870 --> 00:07:03,759
to the surface of mars one other thing a

124
00:07:06,390 --> 00:07:04,880
number of other things that are

125
00:07:08,710 --> 00:07:06,400
important but i'll i'll just mention a

126
00:07:11,110 --> 00:07:08,720
few of them really quickly the president

127
00:07:13,189 --> 00:07:11,120
has given us a challenge to plant an

128
00:07:14,950 --> 00:07:13,199
american flag on mars in over in order

129
00:07:17,749 --> 00:07:14,960
to do that we're going to need to send

130
00:07:18,950 --> 00:07:17,759
humans and when we send humans to mars

131
00:07:21,189 --> 00:07:18,960
they're going to have to be able to

132
00:07:24,390 --> 00:07:21,199
breathe and we can't take all of that

133
00:07:27,749 --> 00:07:24,400
oxygen with us so in this mission we

134
00:07:30,150 --> 00:07:27,759
have a a technology demonstration called

135
00:07:32,710 --> 00:07:30,160
moxie we're going to take the carbon

136
00:07:35,029 --> 00:07:32,720
dioxide atmosphere of mars and we're

137
00:07:37,110 --> 00:07:35,039
going to turn it into oxygen so that

138
00:07:38,710 --> 00:07:37,120

when humans get there we know that we

139
00:07:40,950 --> 00:07:38,720
know that we know that we're going to be

140
00:07:42,150 --> 00:07:40,960
able to create the oxygen necessary for

141
00:07:43,909 --> 00:07:42,160
life support

142
00:07:46,150 --> 00:07:43,919
another very important technology

143
00:07:48,070 --> 00:07:46,160
demonstration on this mission is for the

144
00:07:51,350 --> 00:07:48,080
first time ever we're going to fly a

145
00:07:52,869 --> 00:07:51,360
helicopter on mars we call it ingenuity

146
00:07:55,029 --> 00:07:52,879
and ingenuity

147
00:07:58,950 --> 00:07:55,039
is going to transform how we think about

148
00:08:00,950 --> 00:07:58,960
exploring worlds in the future imagine a

149
00:08:03,350 --> 00:08:00,960
day when we land a robot on mars and

150
00:08:05,670 --> 00:08:03,360
that robot could send maybe a dozen

151
00:08:07,830 --> 00:08:05,680
helicopters in different directions to

152
00:08:09,589 --> 00:08:07,840
make different discoveries so there is

153
00:08:11,670 --> 00:08:09,599
so many things that are exciting about

154
00:08:13,510 --> 00:08:11,680
this mission but one thing that i think

155
00:08:15,589 --> 00:08:13,520
is the most exciting is the fact that

156
00:08:17,749 --> 00:08:15,599
we're going to cash samples when we

157
00:08:20,230 --> 00:08:17,759
study the chemistry

158
00:08:22,629 --> 00:08:20,240
of these sediments in the areas where we

159
00:08:24,230 --> 00:08:22,639
believe there could have been at one

160
00:08:25,430 --> 00:08:24,240
point in time life

161
00:08:27,430 --> 00:08:25,440
we're going to look at the chemistry and

162
00:08:29,189 --> 00:08:27,440
make an assessment as to whether or not

163
00:08:30,550 --> 00:08:29,199

it could have been there we're going to

164
00:08:32,949 --> 00:08:30,560
cash samples

165
00:08:33,909 --> 00:08:32,959
and in 2026 we're going to launch a

166
00:08:35,829 --> 00:08:33,919
mission

167
00:08:37,829 --> 00:08:35,839
from earth to mars to go pick up those

168
00:08:40,469 --> 00:08:37,839
samples and bring them back to earth for

169
00:08:42,790 --> 00:08:40,479
the first time in history doing a mars

170
00:08:44,230 --> 00:08:42,800
sample return mission so there are so

171
00:08:46,550 --> 00:08:44,240
many exciting things about this

172
00:08:49,990 --> 00:08:46,560
particular mission i want to say thank

173
00:08:51,910 --> 00:08:50,000
you to the team at jpl our center out in

174
00:08:54,230 --> 00:08:51,920
california that has done amazing work on

175
00:08:56,150 --> 00:08:54,240
this i want to thank our partners at

176
00:08:58,790 --> 00:08:56,160
lockheed martin for helping with the

177
00:09:00,630 --> 00:08:58,800
entry descent and landing capabilities i

178
00:09:02,630 --> 00:09:00,640
certainly want to thank the united

179
00:09:04,710 --> 00:09:02,640
launch alliance which of course

180
00:09:06,949 --> 00:09:04,720
is providing the atlas 5 rocket that's

181
00:09:09,030 --> 00:09:06,959
launching this vehicle and of course the

182
00:09:11,269 --> 00:09:09,040
folks here at the kennedy space center

183
00:09:13,750 --> 00:09:11,279
uh that have done such magnificent work

184
00:09:15,110 --> 00:09:13,760
uh helping ula get ready for for this

185
00:09:16,870 --> 00:09:15,120
launch

186
00:09:18,070 --> 00:09:16,880
so i just want to say it's a great day

187
00:09:19,509 --> 00:09:18,080
we're going to open it up to a few

188
00:09:21,190 --> 00:09:19,519

questions i want people to know i've got

189
00:09:23,590 --> 00:09:21,200
some other guests here on the stage

190
00:09:26,150 --> 00:09:23,600
questions are open for all of us

191
00:09:28,230 --> 00:09:26,160
but zina cardman as you can tell

192
00:09:29,110 --> 00:09:28,240
she's one of our astronauts one of our

193
00:09:29,829 --> 00:09:29,120
best

194
00:09:32,310 --> 00:09:29,839
and

195
00:09:34,829 --> 00:09:32,320
unlike a lot of other astronauts she's

196
00:09:36,389 --> 00:09:34,839
actually she's a biologist she's a

197
00:09:39,110 --> 00:09:36,399
biologist um

198
00:09:41,350 --> 00:09:39,120
that uh that is now looking at maybe

199
00:09:44,070 --> 00:09:41,360
becoming an astrobiologist so we're

200
00:09:46,389 --> 00:09:44,080
gonna one day send humans to mars she

201
00:09:48,389 --> 00:09:46,399
very well could be one of those humans

202
00:09:50,470 --> 00:09:48,399
and of course we're going there to to

203
00:09:52,710 --> 00:09:50,480
study whether or not

204
00:09:55,190 --> 00:09:52,720
life could exist or may have at one time

205
00:09:56,590 --> 00:09:55,200
existed on mars so so we're very excited

206
00:09:59,030 --> 00:09:56,600
to have our

207
00:10:01,509 --> 00:09:59,040
astrobiologist astronaut zina cardman

208
00:10:03,269 --> 00:10:01,519
here and of course jim morhar the deputy

209
00:10:05,910 --> 00:10:03,279
nasa administrator

210
00:10:07,829 --> 00:10:05,920
who has spent a previous career

211
00:10:10,230 --> 00:10:07,839
in the united states senate

212
00:10:12,230 --> 00:10:10,240
helping america achieve its goals not

213
00:10:14,470 --> 00:10:12,240

just in space exploration but national

214
00:10:16,069 --> 00:10:14,480
security and defense and other things

215
00:10:17,990 --> 00:10:16,079
and as everybody understands when it

216
00:10:20,310 --> 00:10:18,000
comes to doing what we do we require

217
00:10:23,190 --> 00:10:20,320
appropriations from congress and jim has

218
00:10:25,269 --> 00:10:23,200
been a tremendously valuable asset in

219
00:10:26,790 --> 00:10:25,279
helping us achieve what is now the

220
00:10:28,630 --> 00:10:26,800
highest budget

221
00:10:30,710 --> 00:10:28,640
that nasa has ever had in nominal

222
00:10:32,870 --> 00:10:30,720
dollars so we're very excited we're all

223
00:10:34,470 --> 00:10:32,880
open for questions and uh we're ready to

224
00:10:35,750 --> 00:10:34,480
take them whenever you guys are thank

225
00:10:37,750 --> 00:10:35,760
you

226
00:10:39,829 --> 00:10:37,760
uh hello marcia done associated press

227
00:10:42,949 --> 00:10:39,839
for you mr breinstein

228
00:10:45,110 --> 00:10:42,959
um tomorrow is the first leg of this uh

229
00:10:47,509 --> 00:10:45,120
relay race that we got the rundown on

230
00:10:49,670 --> 00:10:47,519
yesterday it sounds crazy hard you know

231
00:10:52,470 --> 00:10:49,680
complicated four launches multiple

232
00:10:53,269 --> 00:10:52,480
spacecraft i mean when you hear about

233
00:10:56,230 --> 00:10:53,279
this

234
00:10:58,550 --> 00:10:56,240
how doable is it how how challenging

235
00:11:00,470 --> 00:10:58,560
what's the chances this is all going to

236
00:11:03,350 --> 00:11:00,480
pull off and these rocks come back in

237
00:11:05,670 --> 00:11:03,360
2031. yeah that's a marshall wonderful

238
00:11:06,790 --> 00:11:05,680

question it's uh without question a

239
00:11:09,110 --> 00:11:06,800
challenge

240
00:11:11,269 --> 00:11:09,120
i mean we there's no other way to put it

241
00:11:14,069 --> 00:11:11,279
and it's not easy and there's a lot of

242
00:11:16,389 --> 00:11:14,079
risk involved from a success perspective

243
00:11:18,069 --> 00:11:16,399
that being said we know how to land on

244
00:11:19,910 --> 00:11:18,079
mars like i said we've done it eight

245
00:11:22,389 --> 00:11:19,920
times already this will be the ninth

246
00:11:24,310 --> 00:11:22,399
entry descent and landing of course is

247
00:11:25,350 --> 00:11:24,320
the scariest part just just getting

248
00:11:26,949 --> 00:11:25,360
there

249
00:11:29,110 --> 00:11:26,959
you've heard of the seven minutes of

250
00:11:31,269 --> 00:11:29,120
terror that's that's going to happen in

251
00:11:33,350 --> 00:11:31,279
february of 2021

252
00:11:35,590 --> 00:11:33,360
and then of course operating on the

253
00:11:37,910 --> 00:11:35,600
surface of mars we we have seen how

254
00:11:39,190 --> 00:11:37,920
harsh the mars environment is we saw

255
00:11:41,430 --> 00:11:39,200
what happened

256
00:11:43,829 --> 00:11:41,440
with opportunity with the sandstorm that

257
00:11:45,269 --> 00:11:43,839
covered up its solar arrays and enabled

258
00:11:46,870 --> 00:11:45,279
and disabled it

259
00:11:48,790 --> 00:11:46,880
and eventually we had to come to the end

260
00:11:51,190 --> 00:11:48,800
of its useful life of course that was

261
00:11:53,350 --> 00:11:51,200
after 15 years of productive discovery

262
00:11:54,710 --> 00:11:53,360
so that's an amazing achievement in

263
00:11:57,430 --> 00:11:54,720

itself

264
00:12:00,150 --> 00:11:57,440
this particular rover of course like

265
00:12:01,750 --> 00:12:00,160
curiosity it's got a radioisotope

266
00:12:03,910 --> 00:12:01,760
thermal generation so it's not as

267
00:12:05,910 --> 00:12:03,920
dependent on the solar arrays it's it's

268
00:12:08,150 --> 00:12:05,920
nuclear powered if you will

269
00:12:09,430 --> 00:12:08,160
so nuclear decay is what creates heat

270
00:12:10,470 --> 00:12:09,440
and then we transfer that heat into

271
00:12:12,310 --> 00:12:10,480
electricity

272
00:12:14,069 --> 00:12:12,320
and we're able to to power the robot

273
00:12:15,750 --> 00:12:14,079
that way so i think that's a a pretty

274
00:12:17,829 --> 00:12:15,760
proven technology i think it will be

275
00:12:19,430 --> 00:12:17,839
able to sustain even in the harsh

276
00:12:20,790 --> 00:12:19,440
environments of of the martian

277
00:12:22,230 --> 00:12:20,800
atmosphere

278
00:12:24,790 --> 00:12:22,240
but you're absolutely right there's a

279
00:12:26,389 --> 00:12:24,800
number of risks between cashing those

280
00:12:28,870 --> 00:12:26,399
samples and bringing them home i'll tell

281
00:12:30,470 --> 00:12:28,880
you the top risk and jim morhart and i

282
00:12:33,030 --> 00:12:30,480
talk about this all the time the top

283
00:12:34,550 --> 00:12:33,040
risk is getting the budgets

284
00:12:36,550 --> 00:12:34,560
we got to get the budgets in order to

285
00:12:38,790 --> 00:12:36,560
get the resources to go and bring those

286
00:12:41,190 --> 00:12:38,800
samples home but we're but we're

287
00:12:42,870 --> 00:12:41,200
planning for it like i said

288
00:12:45,829 --> 00:12:42,880

we have the highest budget in nasa's

289
00:12:48,870 --> 00:12:45,839
history and nominal dollars right now

290
00:12:51,110 --> 00:12:48,880
and it's in fact going up we're 22

291
00:12:52,629 --> 00:12:51,120
billion right now the president's budget

292
00:12:54,949 --> 00:12:52,639
request before the house and the senate

293
00:12:56,550 --> 00:12:54,959
right now is 25.2 so we're going to be

294
00:12:57,990 --> 00:12:56,560
working on that day in and day out to

295
00:12:59,269 --> 00:12:58,000
make sure that we have the resources

296
00:13:01,829 --> 00:12:59,279
necessary

297
00:13:03,910 --> 00:13:01,839
but let's pretend we get those resources

298
00:13:06,230 --> 00:13:03,920
then we have to launch

299
00:13:08,310 --> 00:13:06,240
a launch vehicle which as you described

300
00:13:10,230 --> 00:13:08,320
it's a it's a relay race so we have to

301
00:13:11,910 --> 00:13:10,240
launch a launch vehicle something that

302
00:13:14,310 --> 00:13:11,920
has never been done before and then that

303
00:13:15,910 --> 00:13:14,320
launch vehicle has to successfully get

304
00:13:17,990 --> 00:13:15,920
those samples and bring them back to

305
00:13:19,509 --> 00:13:18,000
earth here's what we know

306
00:13:21,430 --> 00:13:19,519
we know that nasa has an amazing

307
00:13:23,670 --> 00:13:21,440
workforce and of course for this

308
00:13:26,790 --> 00:13:23,680
particular mission jpl is is the lead

309
00:13:29,509 --> 00:13:26,800
the jet propulsion laboratory at caltech

310
00:13:31,350 --> 00:13:29,519
um in california and and i will tell you

311
00:13:33,030 --> 00:13:31,360
that i am confident that given the

312
00:13:35,509 --> 00:13:33,040
talent that we have at this agency that

313
00:13:37,670 --> 00:13:35,519

we can in fact be successful

314
00:13:39,750 --> 00:13:37,680
but it's not easy and and there will be

315
00:13:42,230 --> 00:13:39,760
challenges ahead so thank you for the

316
00:13:46,870 --> 00:13:44,870
hi uh irene klotz with aviation week so

317
00:13:50,069 --> 00:13:46,880
speaking of the budget

318
00:13:51,750 --> 00:13:50,079
senator shelby on monday introduced a

319
00:13:54,949 --> 00:13:51,760
coronavirus

320
00:13:59,350 --> 00:13:54,959
response supplemental appropriation that

321
00:14:01,670 --> 00:13:59,360
includes about 1.5 billion for nasa

322
00:14:04,150 --> 00:14:01,680
is that about what you estimate the

323
00:14:06,550 --> 00:14:04,160
financial impact of the coronavirus has

324
00:14:09,110 --> 00:14:06,560
been on the agency and what are the

325
00:14:11,509 --> 00:14:09,120
top two or three budget drivers in that

326
00:14:13,350 --> 00:14:11,519
1.5 billion thanks

327
00:14:15,430 --> 00:14:13,360
you know great question we're in the

328
00:14:17,990 --> 00:14:15,440
middle of looking at that they they have

329
00:14:20,629 --> 00:14:18,000
put in the funds in the senate bill

330
00:14:22,629 --> 00:14:20,639
uh as you know with covet and our you

331
00:14:25,509 --> 00:14:22,639
know our workforce has done an amazing

332
00:14:27,430 --> 00:14:25,519
job here we are we're launching to mars

333
00:14:29,990 --> 00:14:27,440
in the middle of a pandemic

334
00:14:31,910 --> 00:14:30,000
we already launched two astronauts and

335
00:14:34,949 --> 00:14:31,920
bob and doug hopefully be coming back on

336
00:14:38,310 --> 00:14:34,959
sunday in the middle of a pandemic

337
00:14:40,310 --> 00:14:38,320
but those numbers as far as what we need

338
00:14:42,949 --> 00:14:40,320

continue to change

339
00:14:45,430 --> 00:14:42,959
and right now that is a good estimate

340
00:14:48,150 --> 00:14:45,440
today but that could change it is

341
00:14:51,110 --> 00:14:48,160
changing as we continue to look at the

342
00:14:53,750 --> 00:14:51,120
impacts on cost and schedule of all our

343
00:14:56,470 --> 00:14:53,760
programs and we're going to continue to

344
00:14:58,870 --> 00:14:56,480
work those numbers as we go forward and

345
00:15:01,430 --> 00:14:58,880
as that bill gets to enactment

346
00:15:05,110 --> 00:15:01,440
so just at this point what are the top

347
00:15:07,189 --> 00:15:05,120
two or three programs of the 1.5 billion

348
00:15:09,430 --> 00:15:07,199
you know it goes across all the mission

349
00:15:11,110 --> 00:15:09,440
directorates so i'm not saying that

350
00:15:13,430 --> 00:15:11,120
there's any you know there's a lot of

351
00:15:15,910 --> 00:15:13,440
money in human exploration

352
00:15:17,750 --> 00:15:15,920
uh as i when i looked at it but it

353
00:15:19,829 --> 00:15:17,760
really covers all of the mission

354
00:15:24,310 --> 00:15:19,839
directorates and the centers

355
00:15:29,910 --> 00:15:27,670
i would add um that number number one uh

356
00:15:31,910 --> 00:15:29,920
we are very grateful uh to senator

357
00:15:34,310 --> 00:15:31,920
shelby for for doing that we're very

358
00:15:35,990 --> 00:15:34,320
grateful to the senate and we would ask

359
00:15:38,069 --> 00:15:36,000
that members of congress both sides of

360
00:15:39,990 --> 00:15:38,079
the aisle both the house and the senate

361
00:15:41,910 --> 00:15:40,000
uh step up to the plate and help there

362
00:15:43,350 --> 00:15:41,920
will be there will be more impacts as

363
00:15:45,350 --> 00:15:43,360

time goes on

364
00:15:48,069 --> 00:15:45,360
we were very careful to protect two

365
00:15:49,670 --> 00:15:48,079
missions that were essential to the

366
00:15:51,430 --> 00:15:49,680
interests of the nation the first one

367
00:15:53,350 --> 00:15:51,440
was launching american astronauts on

368
00:15:55,990 --> 00:15:53,360
american rockets from american soil for

369
00:15:58,310 --> 00:15:56,000
the first time since 2011 and then the

370
00:15:59,910 --> 00:15:58,320
second mission is this one we had to

371
00:16:02,470 --> 00:15:59,920
protect this mission because earth and

372
00:16:04,389 --> 00:16:02,480
mars are aligned once every 26 months

373
00:16:06,150 --> 00:16:04,399
and if we have to put this robot into

374
00:16:08,389 --> 00:16:06,160
storage it will cost the american

375
00:16:10,069 --> 00:16:08,399
taxpayers half a billion dollars so

376
00:16:11,990 --> 00:16:10,079
we've done great work protecting our

377
00:16:13,910 --> 00:16:12,000
workforce we've done great work

378
00:16:16,389 --> 00:16:13,920
protecting these missions

379
00:16:18,710 --> 00:16:16,399
but the the deputy is absolutely right

380
00:16:19,910 --> 00:16:18,720
there will be more impacts and and we

381
00:16:22,389 --> 00:16:19,920
don't know

382
00:16:23,749 --> 00:16:22,399
when this pandemic is going to end

383
00:16:25,269 --> 00:16:23,759
and until it does

384
00:16:26,949 --> 00:16:25,279
these numbers are going to continue to

385
00:16:30,310 --> 00:16:26,959
change and we will be updating congress

386
00:16:33,670 --> 00:16:32,230
thank you ken kramer from space up close

387
00:16:35,030 --> 00:16:33,680
thanks thanks for doing this thanks for

388
00:16:37,910 --> 00:16:35,040

meeting the media it's really great to

389
00:16:39,430 --> 00:16:37,920
be here um i'm an organic chemist so i'm

390
00:16:41,829 --> 00:16:39,440
super excited that we're going to be

391
00:16:43,829 --> 00:16:41,839
collecting these samples uh that

392
00:16:45,749 --> 00:16:43,839
potentially have organic molecules in

393
00:16:48,389 --> 00:16:45,759
them and and looking for past and

394
00:16:51,350 --> 00:16:48,399
current life maybe uh xenon i wonder if

395
00:16:53,269 --> 00:16:51,360
you might be working on that and jim can

396
00:16:55,590 --> 00:16:53,279
you give us since its moon to mars give

397
00:16:57,430 --> 00:16:55,600
us an up to the minute update on on

398
00:17:00,069 --> 00:16:57,440
artemis on the core stage on the testing

399
00:17:01,189 --> 00:17:00,079
when is that green run hot prior test

400
00:17:02,550 --> 00:17:01,199
going to happen

401
00:17:05,110 --> 00:17:02,560
thank you

402
00:17:07,189 --> 00:17:05,120
yeah so i won't necessarily be the one

403
00:17:09,110 --> 00:17:07,199
working on these samples that come back

404
00:17:10,789 --> 00:17:09,120
uh but i sure will be following along

405
00:17:12,710 --> 00:17:10,799
with what happens with them you know

406
00:17:15,669 --> 00:17:12,720
this is a subject very near and dear to

407
00:17:18,309 --> 00:17:15,679
my heart i was a geo microbiologist

408
00:17:19,750 --> 00:17:18,319
before this so this is exactly the

409
00:17:21,909 --> 00:17:19,760
intersection of all the things i'm

410
00:17:23,270 --> 00:17:21,919
really passionate about and you know one

411
00:17:26,150 --> 00:17:23,280
of the cool things about being an

412
00:17:29,270 --> 00:17:26,160
astronaut is i you know am no longer

413
00:17:31,350 --> 00:17:29,280

doing my own research i am now part of a

414
00:17:33,830 --> 00:17:31,360
much bigger project than anything i

415
00:17:35,830 --> 00:17:33,840
could do on my own and so when i fly in

416
00:17:38,150 --> 00:17:35,840
space i will be the eyes and ears and

417
00:17:40,150 --> 00:17:38,160
lab notebook of someone else's research

418
00:17:42,470 --> 00:17:40,160
and a much much larger collaborative

419
00:17:44,150 --> 00:17:42,480
research project so i will be really

420
00:17:48,230 --> 00:17:44,160
really excited to see what happens with

421
00:17:52,630 --> 00:17:50,549
if i could if i could add to that you

422
00:17:55,350 --> 00:17:52,640
know that really one of the neat parts

423
00:17:56,470 --> 00:17:55,360
about looking for this ancient microbial

424
00:17:58,630 --> 00:17:56,480
matter is

425
00:18:02,230 --> 00:17:58,640
we knew that

426
00:18:03,270 --> 00:18:02,240
in australia in the in the uh polbera

427
00:18:05,350 --> 00:18:03,280
outback

428
00:18:07,909 --> 00:18:05,360
we sent our scientists there

429
00:18:10,950 --> 00:18:07,919
to look for the that's where we know of

430
00:18:12,630 --> 00:18:10,960
the oldest fossils are on earth that we

431
00:18:15,190 --> 00:18:12,640
know of are there

432
00:18:16,710 --> 00:18:15,200
but we sent our scientists there to look

433
00:18:19,669 --> 00:18:16,720
for signatures

434
00:18:22,310 --> 00:18:19,679
so as our rover is looking

435
00:18:25,029 --> 00:18:22,320
for these this microbial matter it's

436
00:18:27,590 --> 00:18:25,039
really looking for signposts that will

437
00:18:30,789 --> 00:18:27,600
lead us there and we've taken that data

438
00:18:32,870 --> 00:18:30,799

from australia entered it into the rover

439
00:18:39,430 --> 00:18:32,880
so it's going to know how to look for it

440
00:18:44,390 --> 00:18:41,510
as far as the

441
00:18:47,510 --> 00:18:44,400
can you guys hear me with the rain

442
00:18:51,510 --> 00:18:47,520
okay i'll i'll talk loudly into the mic

443
00:18:53,430 --> 00:18:51,520
as far as the artemis program goes

444
00:18:55,270 --> 00:18:53,440
we have right now for the first time

445
00:18:57,750 --> 00:18:55,280
since 1972

446
00:18:59,510 --> 00:18:57,760
we have a human landing system funded

447
00:19:02,150 --> 00:18:59,520
for the surface of the moon to the tune

448
00:19:04,549 --> 00:19:02,160
of 600 million dollars

449
00:19:06,710 --> 00:19:04,559
not only is it funded we now have human

450
00:19:09,190 --> 00:19:06,720
landing systems under contract so those

451
00:19:11,110 --> 00:19:09,200
are all significant developments uh in

452
00:19:13,190 --> 00:19:11,120
the history of our agency there have

453
00:19:14,710 --> 00:19:13,200
been number of times when we've tried to

454
00:19:17,990 --> 00:19:14,720
go back to the moon and that has not

455
00:19:19,669 --> 00:19:18,000
happened we now have that well underway

456
00:19:21,510 --> 00:19:19,679
we have a budget request before the

457
00:19:24,549 --> 00:19:21,520
house and the senate right now where

458
00:19:28,470 --> 00:19:24,559
we're asking for 3.6 billion dollars for

459
00:19:31,110 --> 00:19:28,480
the human landing system for 2022 um and

460
00:19:33,510 --> 00:19:31,120
or i should say 2021 and we need to get

461
00:19:35,669 --> 00:19:33,520
that we need to get that funded uh 100

462
00:19:37,909 --> 00:19:35,679
percent uh the biggest risks that we

463
00:19:39,350 --> 00:19:37,919

face are not technical we can do this

464
00:19:40,710 --> 00:19:39,360
the biggest risk that we face are

465
00:19:42,630 --> 00:19:40,720
budgetary

466
00:19:44,310 --> 00:19:42,640
and and i can tell you that with

467
00:19:45,669 --> 00:19:44,320
the team that we have at nasa right now

468
00:19:47,990 --> 00:19:45,679
i think we're in good shape we've got

469
00:19:50,310 --> 00:19:48,000
bipartisan support we're working every

470
00:19:52,390 --> 00:19:50,320
day to ensure that these missions are

471
00:19:54,310 --> 00:19:52,400
not just decadal in nature but they're

472
00:19:56,630 --> 00:19:54,320
generational in nature so they have

473
00:19:59,430 --> 00:19:56,640
staying power for the long term i would

474
00:20:02,470 --> 00:19:59,440
i would also say as far as like the

475
00:20:04,789 --> 00:20:02,480
tactics of this look uh the sls core

476
00:20:06,870 --> 00:20:04,799
stage is complete the solid rocket

477
00:20:09,029 --> 00:20:06,880
boosters are right here at the kennedy

478
00:20:10,789 --> 00:20:09,039
space center processing right now i just

479
00:20:12,470 --> 00:20:10,799
looked at them we looked at them just

480
00:20:13,830 --> 00:20:12,480
two days ago

481
00:20:16,149 --> 00:20:13,840
and let me tell you they're beautiful i

482
00:20:17,590 --> 00:20:16,159
just want to be clear about that

483
00:20:22,549 --> 00:20:17,600
and

484
00:20:24,870 --> 00:20:22,559
the european service module they are

485
00:20:27,590 --> 00:20:24,880
complete for artemis one which is an

486
00:20:30,950 --> 00:20:27,600
uncrewed launch around the moon uh which

487
00:20:34,070 --> 00:20:30,960
we're going to do in 2021 um we're

488
00:20:37,029 --> 00:20:34,080

expecting or yeah 2021 word we're

489
00:20:38,549 --> 00:20:37,039
expecting uh that the green run uh is

490
00:20:41,270 --> 00:20:38,559
going to be done by the end of this year

491
00:20:43,669 --> 00:20:41,280
in fact we're we're targeting uh uh

492
00:20:46,149 --> 00:20:43,679
october uh november so

493
00:20:48,310 --> 00:20:46,159
um i think we're in good shape again the

494
00:20:49,830 --> 00:20:48,320
big challenge as you know is not just

495
00:20:51,590 --> 00:20:49,840
budgetary that's that's always the

496
00:20:53,430 --> 00:20:51,600
biggest one but the the other big

497
00:20:56,390 --> 00:20:53,440
challenge of course is the the

498
00:20:58,789 --> 00:20:56,400
uncertainty with the coronavirus uh we

499
00:21:01,029 --> 00:20:58,799
have had some uh folks uh get

500
00:21:01,830 --> 00:21:01,039
coronavirus uh down there at the green

501
00:21:03,590 --> 00:21:01,840
run

502
00:21:06,390 --> 00:21:03,600
to protect our people we've had to stop

503
00:21:07,750 --> 00:21:06,400
work a number of times um and those are

504
00:21:09,590 --> 00:21:07,760
those are important things that we can't

505
00:21:11,190 --> 00:21:09,600
predict the future of but

506
00:21:12,470 --> 00:21:11,200
we've had a lot of success in keeping

507
00:21:17,669 --> 00:21:12,480
our people safe and we intend to

508
00:21:22,470 --> 00:21:19,909
hi antonia haramijo with florida today

509
00:21:23,990 --> 00:21:22,480
um my question is for jim um as you know

510
00:21:26,149 --> 00:21:24,000
so many of the workers involved with

511
00:21:28,549 --> 00:21:26,159
this mission weren't able to come out to

512
00:21:29,750 --> 00:21:28,559
the launch because of the pandemic so i

513
00:21:32,149 --> 00:21:29,760

was wondering if you had a rough

514
00:21:33,669 --> 00:21:32,159
estimate of how many nasa employees were

515
00:21:35,909 --> 00:21:33,679
actually able to come out and how many

516
00:21:38,549 --> 00:21:35,919
had to miss out on the event

517
00:21:42,070 --> 00:21:40,149
yeah that's a that's a good question i

518
00:21:44,310 --> 00:21:42,080
don't have those numbers for you offhand

519
00:21:46,310 --> 00:21:44,320
but i will tell you we we minimized the

520
00:21:48,710 --> 00:21:46,320
amount of people that were coming here

521
00:21:50,230 --> 00:21:48,720
um and of course uh you know it'd be

522
00:21:51,830 --> 00:21:50,240
it'd be nice to have

523
00:21:53,830 --> 00:21:51,840
all of these fields you know covered

524
00:21:55,110 --> 00:21:53,840
with not just nasa employees but also

525
00:21:56,549 --> 00:21:55,120
the public

526
00:21:58,710 --> 00:21:56,559
and unfortunately we can't do that right

527
00:22:00,230 --> 00:21:58,720
now but uh but there will come a day i

528
00:22:02,710 --> 00:22:00,240
don't have the exact numbers of how many

529
00:22:05,909 --> 00:22:02,720
people that that we didn't bring

530
00:22:09,510 --> 00:22:07,830
you know i might add to that and you

531
00:22:10,870 --> 00:22:09,520
know you think about again it goes back

532
00:22:13,430 --> 00:22:10,880
to the pandemic

533
00:22:16,390 --> 00:22:13,440
and we were doing uh the the flight

534
00:22:18,710 --> 00:22:16,400
readiness review a few days ago and one

535
00:22:20,549 --> 00:22:18,720
of the scientists from jpl he said you

536
00:22:22,789 --> 00:22:20,559
know when it was determined that we were

537
00:22:24,710 --> 00:22:22,799
going to go forward with this mission

538
00:22:27,029 --> 00:22:24,720

during a pandemic he said i wasn't too

539
00:22:29,590 --> 00:22:27,039
excited about it and he said but

540
00:22:31,909 --> 00:22:29,600
everybody came together at nasa

541
00:22:33,430 --> 00:22:31,919
all the centers came together all the

542
00:22:35,190 --> 00:22:33,440
mission directorates

543
00:22:37,830 --> 00:22:35,200
we worked together as a team we

544
00:22:39,430 --> 00:22:37,840
collaborated and i've never seen

545
00:22:41,350 --> 00:22:39,440
anything like it where

546
00:22:43,270 --> 00:22:41,360
you know every organization you know

547
00:22:44,630 --> 00:22:43,280
there's conflict in organizations that's

548
00:22:46,870 --> 00:22:44,640
normal

549
00:22:47,909 --> 00:22:46,880
but there wasn't with this and everybody

550
00:22:50,070 --> 00:22:47,919
worked

551
00:22:52,390 --> 00:22:50,080
extremely hard to make this happen

552
00:22:55,590 --> 00:22:52,400
during very difficult times

553
00:22:57,510 --> 00:22:55,600
and the reason is to to bring hope and

554
00:22:59,510 --> 00:22:57,520
inspiration to the country into the

555
00:23:01,190 --> 00:22:59,520
world and we're going to continue to do

556
00:23:06,870 --> 00:23:01,200
that because that's what nasa is here

557
00:23:10,470 --> 00:23:08,710
hey mr administrator

558
00:23:12,149 --> 00:23:10,480
you like uh andy lennox here comes the

559
00:23:15,270 --> 00:23:12,159
rain again

560
00:23:18,149 --> 00:23:15,280
so um i'm mike from fox 35 orlando my

561
00:23:19,909 --> 00:23:18,159
question is weather related actually

562
00:23:21,750 --> 00:23:19,919
so we're very excited about tomorrow's

563
00:23:23,669 --> 00:23:21,760

launch and also excited about bob and

564
00:23:26,310 --> 00:23:23,679
doug's return this weekend

565
00:23:29,110 --> 00:23:26,320
but we've got this system that could

566
00:23:30,950 --> 00:23:29,120
come to the peninsula looks like it will

567
00:23:33,750 --> 00:23:30,960
wonder what the discussion is like sort

568
00:23:37,590 --> 00:23:33,760
of behind the scenes about if we lose

569
00:23:38,789 --> 00:23:37,600
tomorrow's opportunity can we go

570
00:23:40,549 --> 00:23:38,799
next week

571
00:23:42,549 --> 00:23:40,559
and also sort of what's happening with

572
00:23:43,669 --> 00:23:42,559
the conversation about the astronauts

573
00:23:46,230 --> 00:23:43,679
homecoming

574
00:23:48,870 --> 00:23:46,240
yeah so great questions all uh we we

575
00:23:50,710 --> 00:23:48,880
have a launch window here for

576
00:23:53,669 --> 00:23:50,720
this mission to mars

577
00:23:55,350 --> 00:23:53,679
that goes until about august 15th

578
00:23:57,669 --> 00:23:55,360
and we can actually extend a few days

579
00:23:59,830 --> 00:23:57,679
past that if necessary but the launch

580
00:24:02,230 --> 00:23:59,840
windows should that happen go to almost

581
00:24:04,870 --> 00:24:02,240
instantaneous launches on every single

582
00:24:06,870 --> 00:24:04,880
day after august 15. so it's a challenge

583
00:24:08,390 --> 00:24:06,880
but we could if the weather doesn't work

584
00:24:10,390 --> 00:24:08,400
out tomorrow

585
00:24:11,669 --> 00:24:10,400
we're still going to be in great shape i

586
00:24:13,269 --> 00:24:11,679
will tell you it looks like the weather

587
00:24:15,669 --> 00:24:13,279
is going to be good tomorrow morning for

588
00:24:17,590 --> 00:24:15,679

sure so i fully anticipate that tomorrow

589
00:24:19,590 --> 00:24:17,600
morning we're launching to mars

590
00:24:21,190 --> 00:24:19,600
as far as bob and doug coming home from

591
00:24:23,510 --> 00:24:21,200
the international space station which i

592
00:24:24,310 --> 00:24:23,520
know we're all very very excited about

593
00:24:26,630 --> 00:24:24,320
um

594
00:24:28,549 --> 00:24:26,640
you know we we do have uh some some

595
00:24:31,590 --> 00:24:28,559
limitations the limitations of course

596
00:24:33,750 --> 00:24:31,600
are weather and sea states um

597
00:24:36,549 --> 00:24:33,760
the the the vehicle is good the

598
00:24:38,149 --> 00:24:36,559
astronauts are ready to come home uh the

599
00:24:40,390 --> 00:24:38,159
challenge right now is the weather and

600
00:24:42,230 --> 00:24:40,400
the sea states um and so we have a

601
00:24:44,070 --> 00:24:42,240
number of different locations identified

602
00:24:46,870 --> 00:24:44,080
for where they could come home if they

603
00:24:48,470 --> 00:24:46,880
can't come home to the atlantic ocean

604
00:24:50,630 --> 00:24:48,480
right here off the coast of the kennedy

605
00:24:52,070 --> 00:24:50,640
space center we've got other locations

606
00:24:53,909 --> 00:24:52,080
around the state of florida all the way

607
00:24:56,549 --> 00:24:53,919
over to pensacola where they would have

608
00:24:57,990 --> 00:24:56,559
an opportunity to land so

609
00:24:59,990 --> 00:24:58,000
but again it's not just the weather it's

610
00:25:02,230 --> 00:25:00,000
also the sea states and we need to have

611
00:25:04,630 --> 00:25:02,240
very calm seas for this vehicle to land

612
00:25:06,390 --> 00:25:04,640
especially on the first first effort

613
00:25:07,990 --> 00:25:06,400

here it is still we have to remember

614
00:25:09,510 --> 00:25:08,000
this is a test flight

615
00:25:11,430 --> 00:25:09,520
we're learning all kinds of things that

616
00:25:13,510 --> 00:25:11,440
we never knew before and and we want to

617
00:25:15,029 --> 00:25:13,520
get all the data before we you know push

618
00:25:17,029 --> 00:25:15,039
it any further than we absolutely have

619
00:25:18,630 --> 00:25:17,039
to so look if the weather isn't good or

620
00:25:20,070 --> 00:25:18,640
the sea states aren't good we're going

621
00:25:21,750 --> 00:25:20,080
to take our time

622
00:25:24,149 --> 00:25:21,760
bringing bob and doug home our number

623
00:25:25,830 --> 00:25:24,159
one highest priority is their safety

624
00:25:27,110 --> 00:25:25,840
and so we look forward to bringing them

625
00:25:28,710 --> 00:25:27,120
home safely

626
00:25:30,549 --> 00:25:28,720
but i think we're going to be okay it

627
00:25:33,190 --> 00:25:30,559
just might take a few extra days but

628
00:25:34,470 --> 00:25:33,200
again they might come home on august 2nd

629
00:25:36,710 --> 00:25:34,480
do you know when you might call it for

630
00:25:39,350 --> 00:25:36,720
bob and doug yeah in fact we're looking

631
00:25:42,070 --> 00:25:39,360
at maybe a 48-hour lead time as far as

632
00:25:44,070 --> 00:25:42,080
making a go no-go decision and then as

633
00:25:46,870 --> 00:25:44,080
far as the location goes

634
00:25:48,710 --> 00:25:46,880
um we we have you know about six hours

635
00:25:50,870 --> 00:25:48,720
before splashdown before we have to make

636
00:25:53,830 --> 00:25:50,880
a determination as to which location we

637
00:25:56,230 --> 00:25:53,840
want them where we want them to enter so

638
00:25:58,710 --> 00:25:56,240

we have options that's a good thing here

639
00:26:01,590 --> 00:25:58,720
spacex has done an amazing job of making

640
00:26:03,110 --> 00:26:01,600
sure that there are options available

641
00:26:04,710 --> 00:26:03,120
because we do we want to be really

642
00:26:13,909 --> 00:26:04,720
careful with the limitations that we

643
00:26:18,470 --> 00:26:15,990
hi i'm john from afp and i just have a

644
00:26:21,510 --> 00:26:18,480
question regarding china but this race

645
00:26:24,870 --> 00:26:21,520
uh to mars with china how is nasa living

646
00:26:29,029 --> 00:26:27,510
yeah so i get questions about china they

647
00:26:31,350 --> 00:26:29,039
obviously launched

648
00:26:33,830 --> 00:26:31,360
a rover to mars as well

649
00:26:35,750 --> 00:26:33,840
and certainly we welcome more science we

650
00:26:38,310 --> 00:26:35,760
welcome more discovery

651
00:26:40,549 --> 00:26:38,320
we encourage them to to share what they

652
00:26:42,070 --> 00:26:40,559
learn with the entire world just as nasa

653
00:26:44,149 --> 00:26:42,080
shares what it learns with the entire

654
00:26:46,390 --> 00:26:44,159
world so we look forward to to them

655
00:26:48,390 --> 00:26:46,400
doing that

656
00:26:49,350 --> 00:26:48,400
i hear people frame it as though it's a

657
00:26:50,950 --> 00:26:49,360
race

658
00:26:53,990 --> 00:26:50,960
i want to i want to be really clear on

659
00:26:55,669 --> 00:26:54,000
this this is our ninth time to land a

660
00:26:58,950 --> 00:26:55,679
robot on mars

661
00:27:00,710 --> 00:26:58,960
so we've already done this eight times

662
00:27:02,470 --> 00:27:00,720
and of course you know we've got two

663
00:27:04,870 --> 00:27:02,480

missions at the sun right now we've got

664
00:27:07,430 --> 00:27:04,880
a mission at an asteroid a robot at

665
00:27:09,669 --> 00:27:07,440
bennu a robot called osiris-rex we've

666
00:27:11,750 --> 00:27:09,679
got the new horizons probe in deep space

667
00:27:13,750 --> 00:27:11,760
that gave us the beautiful images of

668
00:27:16,149 --> 00:27:13,760
pluto and then the object in the in the

669
00:27:18,149 --> 00:27:16,159
kipper belt and and now it's it's still

670
00:27:20,630 --> 00:27:18,159
it's still traveling and giving us in

671
00:27:23,909 --> 00:27:20,640
fact now it's giving us um you know kind

672
00:27:26,470 --> 00:27:23,919
of a new perspective um on on the on the

673
00:27:28,789 --> 00:27:26,480
galaxy because it's now seeing parallax

674
00:27:31,750 --> 00:27:28,799
among the stars and things like that so

675
00:27:33,830 --> 00:27:31,760
um of course we now have one commercial

676
00:27:35,190 --> 00:27:33,840
crew capability underway we've got

677
00:27:37,909 --> 00:27:35,200
another one

678
00:27:39,990 --> 00:27:37,919
that is very near completion i just want

679
00:27:41,110 --> 00:27:40,000
to be really clear

680
00:27:43,110 --> 00:27:41,120
you know

681
00:27:44,230 --> 00:27:43,120
we landed humans on the moon 50 years

682
00:27:46,389 --> 00:27:44,240
ago

683
00:27:49,029 --> 00:27:46,399
and our budget is as high as it's ever

684
00:27:50,630 --> 00:27:49,039
been so we are in really good shape

685
00:27:53,029 --> 00:27:50,640
president trump's support with the

686
00:27:56,470 --> 00:27:53,039
budget request and bipartisan support in

687
00:27:58,070 --> 00:27:56,480
congress the house and the senate

688
00:27:59,029 --> 00:27:58,080

you know people can try to frame it as a

689
00:28:00,710 --> 00:27:59,039
race

690
00:28:03,510 --> 00:28:00,720
i just look at it as hey here's another

691
00:28:04,789 --> 00:28:03,520
country doing some more discovery and we

692
00:28:13,669 --> 00:28:04,799
are very hopeful that they'll share it

693
00:28:17,430 --> 00:28:15,350
john mcgill with wine that cable and

694
00:28:19,909 --> 00:28:17,440
news this one's for jim again

695
00:28:21,590 --> 00:28:19,919
um you've been the administrator now for

696
00:28:23,510 --> 00:28:21,600
about three years

697
00:28:25,269 --> 00:28:23,520
what do you think is uh the most

698
00:28:27,029 --> 00:28:25,279
exciting thing that you've

699
00:28:28,950 --> 00:28:27,039
accomplished so far

700
00:28:31,830 --> 00:28:28,960
well i want to be i think it's important

701
00:28:34,389 --> 00:28:31,840
to note that any yes any accomplish that

702
00:28:36,149 --> 00:28:34,399
i have goes well beyond me i'm very

703
00:28:38,149 --> 00:28:36,159
grateful to charlie bolden and his

704
00:28:40,230 --> 00:28:38,159
leadership i'm very grateful to robert

705
00:28:42,149 --> 00:28:40,240
lightfoot and his leadership and of

706
00:28:44,389 --> 00:28:42,159
course now i get to benefit from the

707
00:28:46,789 --> 00:28:44,399
fruits of their labor just as

708
00:28:48,630 --> 00:28:46,799
future nasa administrators will benefit

709
00:28:51,430 --> 00:28:48,640
from the the labor of the team that's

710
00:28:53,990 --> 00:28:51,440
here right now and um but but the key is

711
00:28:55,669 --> 00:28:54,000
nasa obviously continues to do stunning

712
00:28:58,310 --> 00:28:55,679
and impressive things

713
00:29:01,190 --> 00:28:58,320

i i will tell you i i was just an

714
00:29:03,750 --> 00:29:01,200
armchair civilian running a non-profit

715
00:29:06,549 --> 00:29:03,760
museum in tulsa oklahoma

716
00:29:08,310 --> 00:29:06,559
when when the space shuttles retired and

717
00:29:09,750 --> 00:29:08,320
it was devastating to me

718
00:29:11,430 --> 00:29:09,760
the fact that the united states of

719
00:29:13,750 --> 00:29:11,440
america was going to be without a human

720
00:29:15,190 --> 00:29:13,760
space flight capability and at the time

721
00:29:17,669 --> 00:29:15,200
we were all hopeful that it was only

722
00:29:19,590 --> 00:29:17,679
going to be a year and then we went nine

723
00:29:20,789 --> 00:29:19,600
years without any human space flight

724
00:29:22,389 --> 00:29:20,799
capability

725
00:29:23,830 --> 00:29:22,399
and i think that was devastating for

726
00:29:27,350 --> 00:29:23,840
those of us who love and are

727
00:29:29,269 --> 00:29:27,360
enthusiastic about space exploration

728
00:29:31,430 --> 00:29:29,279
so i think you know the the work that it

729
00:29:33,430 --> 00:29:31,440
took to get us to the point where we are

730
00:29:36,149 --> 00:29:33,440
once again launching american astronauts

731
00:29:37,430 --> 00:29:36,159
on american rockets uh you know crew one

732
00:29:39,269 --> 00:29:37,440
we're going to have an international

733
00:29:40,549 --> 00:29:39,279
partner with us on the first one from

734
00:29:43,350 --> 00:29:40,559
japan

735
00:29:44,710 --> 00:29:43,360
these are all great things uh so i think

736
00:29:46,230 --> 00:29:44,720
probably the the best thing that's

737
00:29:48,389 --> 00:29:46,240
happened during my time as the nasa

738
00:29:50,950 --> 00:29:48,399

administrator is is launching humans

739
00:29:52,230 --> 00:29:50,960
again to space and um and you know we're

740
00:29:53,750 --> 00:29:52,240
working every day to make sure that

741
00:30:01,350 --> 00:29:53,760
those humans are eventually landing on

742
00:30:05,269 --> 00:30:03,510
hey there rachel joy with florida today

743
00:30:06,950 --> 00:30:05,279
so all of the mars missions have

744
00:30:09,590 --> 00:30:06,960
launched on united launch alliance

745
00:30:12,470 --> 00:30:09,600
rockets atlas and delta obviously this

746
00:30:14,549 --> 00:30:12,480
one is two why is that and and does

747
00:30:19,510 --> 00:30:14,559
spacex ever get a shot at that what's

748
00:30:23,909 --> 00:30:21,590
yeah so um you know there's a process

749
00:30:25,830 --> 00:30:23,919
when every uh spacecraft needs a launch

750
00:30:27,909 --> 00:30:25,840
vehicle and our uh i mentioned earlier

751
00:30:30,710 --> 00:30:27,919
our launch services program they have a

752
00:30:32,149 --> 00:30:30,720
whole and it's a competitive process um

753
00:30:34,549 --> 00:30:32,159
where they take the requirements of the

754
00:30:36,950 --> 00:30:34,559
spacecraft the orbit they need to go get

755
00:30:40,070 --> 00:30:36,960
into the the performance needed by the

756
00:30:42,230 --> 00:30:40,080
vehicle and they issue a a bid and every

757
00:30:44,630 --> 00:30:42,240
um everybody competes against it

758
00:30:46,630 --> 00:30:44,640
including spacex who's on that contract

759
00:30:49,590 --> 00:30:46,640
and then they do an evaluation to see

760
00:30:51,669 --> 00:30:49,600
which um which particular rocket

761
00:30:53,590 --> 00:30:51,679
best meets uh the needs of the

762
00:30:56,870 --> 00:30:53,600
government to get that that uh

763
00:30:58,549 --> 00:30:56,880

spacecraft into orbit so yes spacex does

764
00:31:00,070 --> 00:30:58,559
have an opportunity now and they will

765
00:31:01,830 --> 00:31:00,080
continue to have in the future as they

766
00:31:03,909 --> 00:31:01,840
are building up there quickly building

767
00:31:06,870 --> 00:31:03,919
up their reliability and the numbers of

768
00:31:09,029 --> 00:31:06,880
launches at atlas v but they all compete

769
00:31:10,070 --> 00:31:09,039
they all use the same factors and our

770
00:31:11,830 --> 00:31:10,080
lsp

771
00:31:13,350 --> 00:31:11,840
team does a really great job of that can

772
00:31:15,029 --> 00:31:13,360
you be specific at all though what it

773
00:31:17,110 --> 00:31:15,039
what is it about their rockets about the

774
00:31:19,909 --> 00:31:17,120
atlas about the delta that met those

775
00:31:21,669 --> 00:31:19,919
requirements or like what i do not i

776
00:31:25,430 --> 00:31:21,679
can't speak to that uh you know i wasn't

777
00:31:27,750 --> 00:31:25,440
really in that uh bid but i i i'm i i i

778
00:31:29,190 --> 00:31:27,760
think you know atlas uh uh won the one

779
00:31:31,590 --> 00:31:29,200
the one the bid in that case and of

780
00:31:35,430 --> 00:31:31,600
course cost is a cost is a factor also

781
00:31:36,950 --> 00:31:35,440
so you know spacex uh uh uh

782
00:31:38,789 --> 00:31:36,960
coming in with that but the the

783
00:31:41,190 --> 00:31:38,799
technical performance and cost and other

784
00:31:43,830 --> 00:31:41,200
evaluation factors are all put together

785
00:31:50,389 --> 00:31:43,840
and then the official makes a decision

786
00:31:53,350 --> 00:31:52,230
you know these robots take a long time

787
00:31:56,470 --> 00:31:53,360
to develop

788
00:31:58,470 --> 00:31:56,480

um and and and so the decision as far as

789
00:32:00,950 --> 00:31:58,480
you have to you have to design the the

790
00:32:02,630 --> 00:32:00,960
machinery specific for

791
00:32:06,389 --> 00:32:02,640
um you know the acoustics and the

792
00:32:08,789 --> 00:32:06,399
vibrations of of a launch vehicle so the

793
00:32:09,590 --> 00:32:08,799
selection for this launch was a while

794
00:32:10,470 --> 00:32:09,600
ago

795
00:32:12,310 --> 00:32:10,480
um

796
00:32:14,389 --> 00:32:12,320
long before i think i was the nasa

797
00:32:16,549 --> 00:32:14,399
administrator i could be wrong on that

798
00:32:19,750 --> 00:32:16,559
um but but i think it was before i got

799
00:32:21,350 --> 00:32:19,760
here but i think that the point is um

800
00:32:22,710 --> 00:32:21,360
you know a lot of those previous

801
00:32:24,549 --> 00:32:22,720
missions that you talked about there

802
00:32:26,149 --> 00:32:24,559
wasn't a competitive launch market at

803
00:32:28,149 --> 00:32:26,159
the time it was

804
00:32:29,669 --> 00:32:28,159
we just had a few a few options and they

805
00:32:31,509 --> 00:32:29,679
were all you know

806
00:32:33,350 --> 00:32:31,519
owned and operated by the government

807
00:32:35,110 --> 00:32:33,360
purchased from contractors of course but

808
00:32:36,870 --> 00:32:35,120
operated by the government so this idea

809
00:32:38,710 --> 00:32:36,880
where where we do

810
00:32:41,509 --> 00:32:38,720
we have a launch services provider

811
00:32:43,269 --> 00:32:41,519
capability that is selecting uh you know

812
00:32:45,590 --> 00:32:43,279
looking at competitive bids and making

813
00:32:47,430 --> 00:32:45,600

decisions uh you know for our initial

814
00:32:49,430 --> 00:32:47,440
launches that wasn't really the case for

815
00:32:52,149 --> 00:32:49,440
some of the previous mars missions got

816
00:32:54,310 --> 00:32:52,159
it thank you

817
00:32:55,909 --> 00:32:54,320
if i could add to that too i spent a lot

818
00:32:58,149 --> 00:32:55,919
of time on the senate appropriations

819
00:33:00,630 --> 00:32:58,159
committee and

820
00:33:01,669 --> 00:33:00,640
and look we love our contractors

821
00:33:04,070 --> 00:33:01,679
but

822
00:33:05,830 --> 00:33:04,080
rarely satisfied because they've got to

823
00:33:07,990 --> 00:33:05,840
meet their quarterly numbers

824
00:33:10,470 --> 00:33:08,000
and our job is to preserve taxpayer

825
00:33:12,789 --> 00:33:10,480
dollars and to use them for the best

826
00:33:14,710 --> 00:33:12,799
benefit of the united states and that's

827
00:33:16,070 --> 00:33:14,720
what we're really focused on more than

828
00:33:18,470 --> 00:33:16,080
anything else

829
00:33:20,470 --> 00:33:18,480
and i get it and i can guarantee you we

830
00:33:22,830 --> 00:33:20,480
also i get those questions from a lot of

831
00:33:24,789 --> 00:33:22,840
other contractors

832
00:33:34,149 --> 00:33:24,799
too sure

833
00:33:34,159 --> 00:33:37,990
more questions

834
00:33:38,000 --> 00:33:41,110
all right

835
00:33:45,029 --> 00:33:42,630
well i'll just close it out then it

836
00:33:46,310 --> 00:33:45,039
looks like uh tomorrow morning is uh is

837
00:33:47,830 --> 00:33:46,320
when we're going to launch we're very

838
00:33:50,149 --> 00:33:47,840

excited about it we hope all of you

839
00:33:52,070 --> 00:33:50,159
attend uh folks that want to watch it

840
00:33:53,990 --> 00:33:52,080
virtually we we would encourage you to

841
00:33:56,070 --> 00:33:54,000
go to nasa.gov

842
00:33:57,509 --> 00:33:56,080
watch it on nasa tv

843
00:33:59,350 --> 00:33:57,519
this is going to be an inspirational

844
00:34:00,310 --> 00:33:59,360
moment and of course we're very anxious

845
00:34:02,549 --> 00:34:00,320
about

846
00:34:03,350 --> 00:34:02,559
no kidding the entry descent and landing

847
00:34:04,630 --> 00:34:03,360
and

848
00:34:06,870 --> 00:34:04,640
the great science that we're going to

849
00:34:08,470 --> 00:34:06,880
get starting in february so

850
00:34:09,990 --> 00:34:08,480
stay tuned and we will see you all

851
00:34:38,110 --> 00:34:10,000
tomorrow morning for the launch thank