



1
00:00:05,749 --> 00:00:03,350
live from the Central Coast of

2
00:00:18,070 --> 00:00:05,759
California this is NASA's launch

3
00:00:34,790 --> 00:00:32,810
[Music]

4
00:00:51,650 --> 00:00:34,800
foreign

5
00:00:56,150 --> 00:00:53,990
just about 39 minutes we'll watch as

6
00:00:58,369 --> 00:00:56,160
this United launch Alliance Atlas 5

7
00:01:00,470 --> 00:00:58,379
rocket lifts off from Vandenberg space

8
00:01:02,810 --> 00:01:00,480
force base with this one launch we have

9
00:01:05,810 --> 00:01:02,820
two missions today the primary one is to

10
00:01:08,149 --> 00:01:05,820
deliver jps-2 into orbit which is the

11
00:01:10,609 --> 00:01:08,159
newest polar orbiting weather satellite

12
00:01:12,789 --> 00:01:10,619
the secondary mission is called lofted

13
00:01:16,370 --> 00:01:12,799

which will demonstrate an Innovative

14

00:01:18,830 --> 00:01:16,380

inflatable heat shield

15

00:01:21,350 --> 00:01:18,840

hello and welcome to Vandenberg space

16

00:01:23,450 --> 00:01:21,360

force base in California I'm NASA's

17

00:01:25,969 --> 00:01:23,460

Megan Cruz coming to you live from the

18

00:01:28,670 --> 00:01:25,979

nerve center for all launch vehicle and

19

00:01:30,830 --> 00:01:28,680

spacecraft processing at Vandenberg I'm

20

00:01:33,289 --> 00:01:30,840

sitting just a few feet away from NASA's

21

00:01:35,690 --> 00:01:33,299

Mission director Center and launch

22

00:01:37,910 --> 00:01:35,700

vehicle data centers where teams are

23

00:01:40,010 --> 00:01:37,920

working on today's launch managing the

24

00:01:43,370 --> 00:01:40,020

launch is NASA's launch Services Program

25

00:01:47,510 --> 00:01:43,380

or LSP today's 36-minute launch window

26
00:01:49,069 --> 00:01:47,520
opens at 1 25 a.m Pacific Time now we've

27
00:01:50,690 --> 00:01:49,079
got a whole lot planned for you over the

28
00:01:53,690 --> 00:01:50,700
next three hours you're going to see

29
00:01:55,850 --> 00:01:53,700
that Atlas V rocket launch live also

30
00:01:57,469 --> 00:01:55,860
live reports from NASA's Angelique

31
00:01:59,810 --> 00:01:57,479
herring in Virginia who's with the

32
00:02:02,630 --> 00:01:59,820
lofted team at Langley Research Center

33
00:02:04,490 --> 00:02:02,640
and we of course have our talented team

34
00:02:06,889 --> 00:02:04,500
of commentators who will walk us through

35
00:02:08,270 --> 00:02:06,899
every important Milestone today and

36
00:02:10,729 --> 00:02:08,280
right now that's going to be NASA's

37
00:02:12,589 --> 00:02:10,739
Daryl nail and Mick Waltman guys NASA

38
00:02:14,570 --> 00:02:12,599

and Ula called off the launch last week

39

00:02:16,790 --> 00:02:14,580

right because a battery needed replacing

40

00:02:18,470 --> 00:02:16,800

that's right that's right maybe it had

41

00:02:21,110 --> 00:02:18,480

to do with the flight termination system

42

00:02:23,089 --> 00:02:21,120

a critical component to the launch of

43

00:02:24,770 --> 00:02:23,099

the rocket today and that battery has

44

00:02:27,050 --> 00:02:24,780

been swapped out some work that happened

45

00:02:28,550 --> 00:02:27,060

over the past weekend Daryl nail with

46

00:02:30,470 --> 00:02:28,560

NASA Mick Wolfman engineer with launch

47

00:02:33,890 --> 00:02:30,480

Services Program here to count you down

48

00:02:35,990 --> 00:02:33,900

through this liftoff of jpss2 and lofted

49

00:02:38,030 --> 00:02:36,000

and so far this countdown which began

50

00:02:40,250 --> 00:02:38,040

seven hours ago Mick things are looking

51
00:02:42,470 --> 00:02:40,260
good they cleared the pad at slick three

52
00:02:45,170 --> 00:02:42,480
space launch compacts three complex

53
00:02:47,750 --> 00:02:45,180
three you see the atlas 5 rocket on the

54
00:02:51,229 --> 00:02:47,760
pad venting off that liquid oxygen they

55
00:02:53,089 --> 00:02:51,239
fueled up Atlas V and Centaur and tested

56
00:02:54,530 --> 00:02:53,099
that flight termination system it's all

57
00:02:56,030 --> 00:02:54,540
good including that new flight

58
00:02:57,770 --> 00:02:56,040
termination system battery that was

59
00:02:59,630 --> 00:02:57,780
replaced causing that nine-day launch

60
00:03:01,610 --> 00:02:59,640
but there's also an issue that we're

61
00:03:03,830 --> 00:03:01,620
tracking now regarding uh the liquid

62
00:03:06,770 --> 00:03:03,840
oxygen than Centaur yeah absolutely

63
00:03:07,550 --> 00:03:06,780

Daryl the teams came on station early as

64

00:03:09,530 --> 00:03:07,560

you said and they've been working

65

00:03:11,149 --> 00:03:09,540

through these things the FTS battery we

66

00:03:13,550 --> 00:03:11,159

replaced that with a new battery and

67

00:03:15,830 --> 00:03:13,560

that's going well today the issue the

68

00:03:17,809 --> 00:03:15,840

team's working right now is as they're

69

00:03:20,750 --> 00:03:17,819

filling the the vehicle with liquid

70

00:03:22,910 --> 00:03:20,760

oxygen they are working a valve issue on

71

00:03:25,130 --> 00:03:22,920

the ground they are still able to

72

00:03:26,930 --> 00:03:25,140

maintain filling the vehicle and Topping

73

00:03:28,070 --> 00:03:26,940

the vehicle but the team is talking

74

00:03:29,809 --> 00:03:28,080

through that working through their

75

00:03:31,850 --> 00:03:29,819

procedures and we'll see how that

76
00:03:33,830 --> 00:03:31,860
resolves here throughout the rest of the

77
00:03:35,750 --> 00:03:33,840
count so it did push the rollback of the

78
00:03:37,809 --> 00:03:35,760
mobile service Tower just a little bit

79
00:03:41,270 --> 00:03:37,819
into the night but we did get rollback

80
00:03:43,490 --> 00:03:41,280
and uh we got video of that and there

81
00:03:45,949 --> 00:03:43,500
you see it time lapse video of the

82
00:03:47,869 --> 00:03:45,959
mobile service Tower rolling back from

83
00:03:50,210 --> 00:03:47,879
the atlas V rocket a beautiful sight

84
00:03:51,890 --> 00:03:50,220
here in Vandenberg California as you

85
00:03:55,670 --> 00:03:51,900
watch that roll back and especially

86
00:03:57,949 --> 00:03:55,680
today Mick for the last Atlas 5 2 launch

87
00:04:00,170 --> 00:03:57,959
from the west coast of the United States

88
00:04:03,949 --> 00:04:00,180

yeah absolutely last Atlas five from

89

00:04:05,930 --> 00:04:03,959

space launch complex 3 41st Atlas in

90

00:04:08,089 --> 00:04:05,940

this 401 configuration which I know

91

00:04:09,830 --> 00:04:08,099

we'll talk about a little bit later but

92

00:04:13,309 --> 00:04:09,840

very excited for this Mission today with

93

00:04:15,170 --> 00:04:13,319

jps's 2 and lofted on board as lsp's

94

00:04:17,509 --> 00:04:15,180

100th Mission getting ready to launch

95

00:04:19,909 --> 00:04:17,519

unique mission today dropping off the

96

00:04:21,830 --> 00:04:19,919

jpss2 satellite and lofted we'll talk

97

00:04:25,790 --> 00:04:21,840

more about that in a bit launch time

98

00:04:28,969 --> 00:04:25,800

exactly 1 25 a.m Pacific Standard Time 4

99

00:04:31,909 --> 00:04:28,979

25 a.m eastern time back to Megan

100

00:04:34,070 --> 00:04:31,919

now once in orbit jpss2 will join two

101
00:04:36,110 --> 00:04:34,080
other polar orbiting satellites in the

102
00:04:38,510 --> 00:04:36,120
National Oceanic and Atmospheric

103
00:04:40,189 --> 00:04:38,520
administrations or noaa's joint polar

104
00:04:41,810 --> 00:04:40,199
satellite system that means the

105
00:04:43,730 --> 00:04:41,820
satellites travel back and forth between

106
00:04:45,890 --> 00:04:43,740
the North and South Poles while the

107
00:04:47,749 --> 00:04:45,900
Earth spins underneath it this orbit

108
00:04:51,050 --> 00:04:47,759
allows the satellites to observe the

109
00:04:54,590 --> 00:04:51,060
Earth twice a day giving us timely and

110
00:05:01,249 --> 00:04:57,830
sitting on launch complex 3 at

111
00:05:03,770 --> 00:05:01,259
Vandenberg space Force Base is one could

112
00:05:06,170 --> 00:05:03,780
argue one of the most valuable single

113
00:05:09,590 --> 00:05:06,180

objects on the planet

114

00:05:12,770 --> 00:05:09,600

once in orbit 512 miles above our heads

115

00:05:15,890 --> 00:05:12,780

its data will save lives Safeguard

116

00:05:17,210 --> 00:05:15,900

property and read the vital pulse of the

117

00:05:20,390 --> 00:05:17,220

planet

118

00:05:22,610 --> 00:05:20,400

the four instruments aboard the jpss2

119

00:05:25,969 --> 00:05:22,620

satellite will provide continuous

120

00:05:29,270 --> 00:05:25,979

observations of weather oceans global

121

00:05:33,070 --> 00:05:29,280

temperatures forest fires volcanic dust

122

00:05:39,170 --> 00:05:36,350

jpss2 will join a fleet of other Vital

123

00:05:41,210 --> 00:05:39,180

Earth observing satellites including the

124

00:05:43,850 --> 00:05:41,220

first two in its series

125

00:05:46,550 --> 00:05:43,860

in all there will be four jpss

126
00:05:49,550 --> 00:05:46,560
satellites launched ensuring at least

127
00:05:51,710 --> 00:05:49,560
two continuously in orbit well into the

128
00:05:54,409 --> 00:05:51,720
2030s

129
00:05:57,590 --> 00:05:54,419
covering the entire planet twice a day

130
00:06:00,890 --> 00:05:57,600
helps us plan for severe weather like

131
00:06:03,070 --> 00:06:00,900
hurricanes floods and snowstorms

132
00:06:05,870 --> 00:06:03,080
and the data continuity it provides

133
00:06:07,850 --> 00:06:05,880
allows us to create an archive of

134
00:06:10,129 --> 00:06:07,860
atmospheric temperature and ozone

135
00:06:12,909 --> 00:06:10,139
measurements while monitoring our

136
00:06:16,189 --> 00:06:12,919
changing climate

137
00:06:18,710 --> 00:06:16,199
jpss nighttime imagery provides a view

138
00:06:21,050 --> 00:06:18,720

of the human footprint on Earth by

139

00:06:24,469 --> 00:06:21,060

showing lights from cities highways

140

00:06:26,809 --> 00:06:24,479

shipping vessels and gas flares

141

00:06:29,629 --> 00:06:26,819

patterns we see over time in these Night

142

00:06:33,650 --> 00:06:29,639

Lights reveal how World conflicts and

143

00:06:36,529 --> 00:06:33,660

natural disasters impact our energy use

144

00:06:38,749 --> 00:06:36,539

commissioned and operated by NOAA and

145

00:06:41,809 --> 00:06:38,759

built and launched by NASA and its

146

00:06:44,870 --> 00:06:41,819

commercial Partners the jpss series of

147

00:06:47,510 --> 00:06:44,880

satellites represents the latest in a

148

00:06:50,110 --> 00:06:47,520

proud 60-year history of orbiting

149

00:06:52,610 --> 00:06:50,120

weather platforms

150

00:06:55,430 --> 00:06:52,620

most people don't realize the

151

00:06:58,249 --> 00:06:55,440

contributions jpss satellites make to

152

00:07:01,370 --> 00:06:58,259

their daily lives but that data is with

153

00:07:05,450 --> 00:07:01,380

them every day in every single weather

154

00:07:09,590 --> 00:07:07,550

and the joint polar satellite system is

155

00:07:11,990 --> 00:07:09,600

working for us as we speak about an hour

156

00:07:14,090 --> 00:07:12,000

ago hurricane Nicole made landfall on

157

00:07:16,790 --> 00:07:14,100

the east coast of Florida as a category

158

00:07:19,129 --> 00:07:16,800

one the satellite system is analyzing it

159

00:07:21,290 --> 00:07:19,139

from above to help inform weather cap of

160

00:07:23,450 --> 00:07:21,300

forecasts just as the system did for

161

00:07:26,930 --> 00:07:23,460

Hurricane Ian which made landfall in

162

00:07:28,850 --> 00:07:26,940

Florida also as a strong category 4 back

163

00:07:31,129 --> 00:07:28,860

in September it destroyed homes

164

00:07:32,570 --> 00:07:31,139

businesses and claimed more than a

165

00:07:34,430 --> 00:07:32,580

hundred lives this image right here

166

00:07:37,070 --> 00:07:34,440

shows the sheer size of the hurricane

167

00:07:38,809 --> 00:07:37,080

covering all of South Florida and we

168

00:07:40,249 --> 00:07:38,819

have the second image now this one you

169

00:07:41,809 --> 00:07:40,259

can make out the state a bit better

170

00:07:45,589 --> 00:07:41,819

because here we're highlighting the

171

00:07:48,230 --> 00:07:45,599

lights of Tampa and and uh Miami there

172

00:07:51,409 --> 00:07:48,240

so both were captured by NOAA 20 which

173

00:07:53,390 --> 00:07:51,419

launched in 2017 as the second satellite

174

00:07:55,189 --> 00:07:53,400

in the system

175

00:07:58,129 --> 00:07:55,199

now let's go over the specs of the soon

176
00:08:00,589 --> 00:07:58,139
to be launched jpss2 it weighs more than

177
00:08:03,050 --> 00:08:00,599
5 500 pounds at launch that's roughly

178
00:08:05,150 --> 00:08:03,060
the weight of an adult male rhinoceros

179
00:08:07,490 --> 00:08:05,160
and its size you want to picture a

180
00:08:10,490 --> 00:08:07,500
monster truck seven feet wide and more

181
00:08:13,730 --> 00:08:10,500
than 14 feet tall but when you deploy

182
00:08:16,249 --> 00:08:13,740
its 35-foot solar array it becomes as

183
00:08:19,550 --> 00:08:16,259
long as a three-story building once in

184
00:08:21,770 --> 00:08:19,560
orbit it will fly 512 miles overhead and

185
00:08:24,529 --> 00:08:21,780
travel more than 17

186
00:08:26,589 --> 00:08:24,539
000 miles per hour at that speed in the

187
00:08:31,029 --> 00:08:26,599
time it takes you to watch one movie

188
00:08:34,610 --> 00:08:31,039

jpss2 will have circled the planet once

189

00:08:37,610 --> 00:08:34,620

okay now jpss2 wasn't built in one place

190

00:08:39,649 --> 00:08:37,620

its main body or spacecraft bus along

191

00:08:42,250 --> 00:08:39,659

with the four instruments on board were

192

00:08:45,110 --> 00:08:42,260

built in Indiana Colorado and California

193

00:08:47,870 --> 00:08:45,120

once ready everything was assembled and

194

00:08:50,509 --> 00:08:47,880

tested in Arizona finally it was shipped

195

00:08:53,210 --> 00:08:50,519

here to California for launch in just

196

00:08:55,310 --> 00:08:53,220

about 31 minutes

197

00:08:58,070 --> 00:08:55,320

now NASA's Jasmine Hopkins got to speak

198

00:09:03,050 --> 00:08:58,080

with jpss program director Tim Walsh

199

00:09:07,970 --> 00:09:06,170

joining us now is Tim Walsh jpss program

200

00:09:09,829 --> 00:09:07,980

director thank you so much for being

201
00:09:11,570 --> 00:09:09,839
here Tim thank you Jasmine love being

202
00:09:13,130 --> 00:09:11,580
here tonight of course we're super glad

203
00:09:16,250 --> 00:09:13,140
to have you and it's very exciting

204
00:09:18,410 --> 00:09:16,260
preparing for launch so jpss is not just

205
00:09:21,350 --> 00:09:18,420
focused on forecasting our local weather

206
00:09:23,329 --> 00:09:21,360
but global weather systems how does that

207
00:09:24,949 --> 00:09:23,339
work so tonight when we launch we're

208
00:09:27,170 --> 00:09:24,959
going to launch due south almost due

209
00:09:28,970 --> 00:09:27,180
south over to the uh the polls and so

210
00:09:31,670 --> 00:09:28,980
we're going to go around the earth 14

211
00:09:33,290 --> 00:09:31,680
times a day from pole to pole when we do

212
00:09:35,630 --> 00:09:33,300
finish raising the orbit when we bring

213
00:09:38,810 --> 00:09:35,640

the orbit to its final position we'll be

214

00:09:40,610 --> 00:09:38,820

515 miles off the Earth and by that

215

00:09:42,470 --> 00:09:40,620

we'll be in a special orbit called Sun

216

00:09:44,329 --> 00:09:42,480

synchronous orbit and in that

217

00:09:46,730 --> 00:09:44,339

sun-secretus orbit we're in a fixed

218

00:09:48,470 --> 00:09:46,740

position relative to the Sun and while

219

00:09:50,930 --> 00:09:48,480

the Earth rotates underneath us we see

220

00:09:52,250 --> 00:09:50,940

the whole earth more than twice a day oh

221

00:09:54,350 --> 00:09:52,260

wow that's exciting must be moving

222

00:09:57,290 --> 00:09:54,360

pretty fast then it is quite fast

223

00:09:59,630 --> 00:09:57,300

awesome so jpss2 is actually the third

224

00:10:01,009 --> 00:09:59,640

in this satellite series what makes it

225

00:10:02,870 --> 00:10:01,019

different from the the previous

226

00:10:04,550 --> 00:10:02,880

satellites so there's some really

227

00:10:06,769 --> 00:10:04,560

important differences first of all it's

228

00:10:09,230 --> 00:10:06,779

a new spacecraft the satellite itself is

229

00:10:11,389 --> 00:10:09,240

new the instruments are identical to the

230

00:10:12,769 --> 00:10:11,399

ones that are in orbit but the satellite

231

00:10:14,269 --> 00:10:12,779

is uh brand new and we're going to be

232

00:10:16,310 --> 00:10:14,279

testing it very thoroughly over the next

233

00:10:17,810 --> 00:10:16,320

two weeks and then over the next three

234

00:10:19,610 --> 00:10:17,820

months after that we'll be testing all

235

00:10:21,829 --> 00:10:19,620

the instruments right and when we're in

236

00:10:23,509 --> 00:10:21,839

orbit we do have one instrument that's

237

00:10:25,090 --> 00:10:23,519

that's a little bit different than the

238

00:10:28,130 --> 00:10:25,100

previous and that's one that measures

239

00:10:30,230 --> 00:10:28,140

ozone at the Earth's limb with the edge

240

00:10:32,210 --> 00:10:30,240

of the Earth's atmosphere and by that we

241

00:10:33,949 --> 00:10:32,220

can get really good ozone profiling of

242

00:10:35,530 --> 00:10:33,959

the atmosphere and it's used among other

243

00:10:38,930 --> 00:10:35,540

things to provide

244

00:10:40,310 --> 00:10:38,940

UV index forecasts right so it's helping

245

00:10:42,530 --> 00:10:40,320

us better understand the global

246

00:10:44,930 --> 00:10:42,540

environment that's that's fantastic so

247

00:10:48,230 --> 00:10:44,940

it won't be the last one jpss2 will be

248

00:10:50,630 --> 00:10:48,240

followed by jpss3 and four how are they

249

00:10:52,430 --> 00:10:50,640

all going to work together well jpss the

250

00:10:53,750 --> 00:10:52,440

last s stands for system and so it's

251
00:10:56,030 --> 00:10:53,760
really important to note how we have

252
00:10:58,610 --> 00:10:56,040
four satellites five if you include our

253
00:11:00,970 --> 00:10:58,620
predecessor snpp that all work together

254
00:11:04,310 --> 00:11:00,980
to provide a continuous data record from

255
00:11:06,110 --> 00:11:04,320
2011 all the way into the 2030s and by

256
00:11:07,730 --> 00:11:06,120
doing that we can keep a close eye on

257
00:11:09,350 --> 00:11:07,740
how the climate is changing over time

258
00:11:11,210 --> 00:11:09,360
whether it's temperature or other things

259
00:11:12,590 --> 00:11:11,220
and so we could look at severe weather

260
00:11:14,690 --> 00:11:12,600
in the near term we could look at

261
00:11:16,250 --> 00:11:14,700
climate in the long term fantastic Tim

262
00:11:18,350 --> 00:11:16,260
Walsh thank you so much for joining us

263
00:11:19,250 --> 00:11:18,360

today thank you very much fantastic back

264

00:11:21,470 --> 00:11:19,260

to you

265

00:11:23,990 --> 00:11:21,480

a successful launch today will Mark the

266

00:11:26,690 --> 00:11:24,000

100th for NASA's launch Services Program

267

00:11:28,970 --> 00:11:26,700

LSP is based out of NASA's Kennedy Space

268

00:11:30,829 --> 00:11:28,980

Center in Florida the program has

269

00:11:32,690 --> 00:11:30,839

matched commercial launch providers with

270

00:11:35,870 --> 00:11:32,700

organizations needing a ride to space

271

00:11:38,329 --> 00:11:35,880

since 1998. their uncrewed Rockets have

272

00:11:41,530 --> 00:11:38,339

flown weather satellites telescopes Mars

273

00:11:47,650 --> 00:11:46,430

[Music]

274

00:11:50,290 --> 00:11:47,660

lost

275

00:11:55,250 --> 00:11:50,300

[Music]

276

00:11:58,009 --> 00:11:55,260

three two one zero

277

00:12:00,910 --> 00:11:58,019

liftoff of the mighty Delta IV heavy

278

00:12:03,889 --> 00:12:00,920

rocket with NASA's Parker solar probe

279

00:12:05,810 --> 00:12:03,899

rocket launch is anything but boring I

280

00:12:07,610 --> 00:12:05,820

mean it's exciting no matter how many

281

00:12:10,430 --> 00:12:07,620

times I've seen it it never gets old

282

00:12:13,850 --> 00:12:10,440

when you talk about launch it never gets

283

00:12:15,590 --> 00:12:13,860

old right each mission that we work is

284

00:12:17,090 --> 00:12:15,600

different each day that we are

285

00:12:19,850 --> 00:12:17,100

supporting these missions is different

286

00:12:22,430 --> 00:12:19,860

so it never gets old and liftoff is

287

00:12:26,630 --> 00:12:22,440

something about witnessing just the

288

00:12:30,650 --> 00:12:26,640

sheer impressiveness just the power of

289

00:12:32,509 --> 00:12:30,660

what it takes to pull a spacecraft out

290

00:12:34,850 --> 00:12:32,519

of the gravity well of Earth that we

291

00:12:37,490 --> 00:12:34,860

live in and to send it out of Earth's

292

00:12:40,190 --> 00:12:37,500

orbit on its way to the Moon Mars the

293

00:12:43,129 --> 00:12:40,200

sun asteroids even out of our solar

294

00:12:46,250 --> 00:12:43,139

system I'll never Tire of watching that

295

00:12:48,290 --> 00:12:46,260

it never gets old it really never gets

296

00:12:50,150 --> 00:12:48,300

old seeing rocket launches never gets

297

00:12:51,410 --> 00:12:50,160

old it never gets old you always are

298

00:12:53,150 --> 00:12:51,420

thinking about what's the next one

299

00:12:55,129 --> 00:12:53,160

what's the next one I can do

300

00:12:57,470 --> 00:12:55,139

this was my childhood dream this is what

301
00:12:58,790 --> 00:12:57,480
I dreamed of doing and you get to be a

302
00:13:01,490 --> 00:12:58,800
part of something that's so much bigger

303
00:13:03,350 --> 00:13:01,500
than yourself and to me that was the

304
00:13:06,170 --> 00:13:03,360
best thing that my childhood self could

305
00:13:10,550 --> 00:13:08,569
and to celebrate lsp's 100th Mission

306
00:13:12,170 --> 00:13:10,560
we'll learn more about the program and

307
00:13:13,790 --> 00:13:12,180
meet more of its team throughout this

308
00:13:17,210 --> 00:13:13,800
broadcast

309
00:13:19,370 --> 00:13:17,220
okay we are now 26 minutes and Counting

310
00:13:21,110 --> 00:13:19,380
from liftoff of an atlas V rocket for

311
00:13:23,090 --> 00:13:21,120
two missions today let's go back to

312
00:13:24,650 --> 00:13:23,100
NASA's Daryl nail and Mick Waltman who

313
00:13:26,210 --> 00:13:24,660

have the latest weather forecast for

314

00:13:27,889 --> 00:13:26,220

launch yeah that's right Megan we're

315

00:13:30,949 --> 00:13:27,899

actually listening right now to the

316

00:13:33,829 --> 00:13:30,959

weather brief being given at uh L minus

317

00:13:35,629 --> 00:13:33,839

26 minutes and 30 seconds so it's

318

00:13:37,670 --> 00:13:35,639

running a little bit late but we know

319

00:13:39,470 --> 00:13:37,680

that the launch weather officer has put

320

00:13:42,350 --> 00:13:39,480

the launch weather at more than 90

321

00:13:44,150 --> 00:13:42,360

percent go that's a great sign yeah

322

00:13:45,530 --> 00:13:44,160

great sign launch weather officer is

323

00:13:47,810 --> 00:13:45,540

telling us from the space force that

324

00:13:49,310 --> 00:13:47,820

everything looks green tonight uh all

325

00:13:50,810 --> 00:13:49,320

the weather is great the front that we

326

00:13:52,430 --> 00:13:50,820

had the last couple days has moved

327

00:13:54,910 --> 00:13:52,440

through as you can see in the picture

328

00:13:57,710 --> 00:13:54,920

clear skies this evening perfect

329

00:14:00,590 --> 00:13:57,720

temperature out there for the atlas 5

330

00:14:02,150 --> 00:14:00,600

Mission you can see a clear black Sky of

331

00:14:03,650 --> 00:14:02,160

course not really if there were clouds

332

00:14:05,269 --> 00:14:03,660

you wouldn't see them but we can tell

333

00:14:06,530 --> 00:14:05,279

you that at the moment there's not a

334

00:14:08,870 --> 00:14:06,540

whole lot out there and take a look at

335

00:14:10,910 --> 00:14:08,880

the satellite Loop to explain there it

336

00:14:13,610 --> 00:14:10,920

is we are on the central California

337

00:14:15,769 --> 00:14:13,620

coast launching from Vandenberg you can

338

00:14:18,230 --> 00:14:15,779

see a system to the far right that's

339

00:14:20,389 --> 00:14:18,240

gone past us that brought a lot of rain

340

00:14:22,790 --> 00:14:20,399

but it's exiting bringing us clear

341

00:14:25,129 --> 00:14:22,800

conditions launch weather officer

342

00:14:26,750 --> 00:14:25,139

Zachary zones says that we could still

343

00:14:28,970 --> 00:14:26,760

see some lingering moisture and

344

00:14:31,250 --> 00:14:28,980

instability but it's very low chance in

345

00:14:33,110 --> 00:14:31,260

fact his forecast says we are more than

346

00:14:35,210 --> 00:14:33,120

90 percent go for launch weather tonight

347

00:14:37,490 --> 00:14:35,220

with the only concern for cumulus clouds

348

00:14:40,250 --> 00:14:37,500

and temperature you can see right now we

349

00:14:42,410 --> 00:14:40,260

are about 44 degrees outside that

350

00:14:44,389 --> 00:14:42,420

greater than 90 percent go winds are 7

351

00:14:46,610 --> 00:14:44,399

to 12 miles per hour out of the North

352

00:14:48,470 --> 00:14:46,620

and that rain on the ground is actually

353

00:14:50,750 --> 00:14:48,480

keeping us a little warmer so that's a

354

00:14:53,090 --> 00:14:50,760

great forecast for today yeah absolutely

355

00:14:55,189 --> 00:14:53,100

Daryl I couldn't ask for better weather

356

00:14:56,870 --> 00:14:55,199

to get jps's too and lofted on its way

357

00:14:58,910 --> 00:14:56,880

this morning as for the backup day

358

00:15:01,370 --> 00:14:58,920

Captain zonas says we are down only a

359

00:15:02,569 --> 00:15:01,380

smidge to a full 90 percent for Launch

360

00:15:05,210 --> 00:15:02,579

Weather thanks to a high pressure

361

00:15:08,030 --> 00:15:05,220

settling over the area and causing a

362

00:15:10,850 --> 00:15:08,040

weakening of the Winds and more stable

363

00:15:12,889 --> 00:15:10,860

conditions now in about six minutes said

364

00:15:15,530 --> 00:15:12,899

L minus 19 you'll see the t-clock go

365

00:15:17,329 --> 00:15:15,540

into a built-in hole old and we'll talk

366

00:15:19,670 --> 00:15:17,339

a little bit about that but we are T

367

00:15:22,610 --> 00:15:19,680

minus 24 minutes and Counting until

368

00:15:25,550 --> 00:15:22,620

liftoff let's send it back to Megan

369

00:15:27,530 --> 00:15:25,560

thank you both so once Noah's jpss2

370

00:15:29,750 --> 00:15:27,540

reaches orbit and we confirm a signal

371

00:15:31,790 --> 00:15:29,760

our Focus will shift to lofted which

372

00:15:35,030 --> 00:15:31,800

stands for low earth orbit flight test

373

00:15:37,129 --> 00:15:35,040

of an inflatable decelerator I stress

374

00:15:39,290 --> 00:15:37,139

the word inflatable because current heat

375

00:15:42,050 --> 00:15:39,300

shields are rigid made of materials like

376

00:15:44,389 --> 00:15:42,060

Ceramics or metals that means the size

377

00:15:46,730 --> 00:15:44,399

of the heat shield is constrained by the

378

00:15:49,430 --> 00:15:46,740

size of the Rocket taking it up but a

379

00:15:51,590 --> 00:15:49,440

flexible design can be folded up taking

380

00:15:54,050 --> 00:15:51,600

up less room during launch and then

381

00:15:56,569 --> 00:15:54,060

inflating into a larger Shield when it's

382

00:15:58,910 --> 00:15:56,579

time to land meaning more room for

383

00:16:00,829 --> 00:15:58,920

experiments equipment and people for

384

00:16:03,170 --> 00:16:00,839

future farther trips like the Artemis

385

00:16:05,509 --> 00:16:03,180

missions

386

00:16:07,129 --> 00:16:05,519

NASA is demonstrating inflatable heat

387

00:16:09,650 --> 00:16:07,139

shield technology that could help land

388

00:16:11,090 --> 00:16:09,660

humans on Mars this technology is

389

00:16:13,730 --> 00:16:11,100

hitching a ride with noaa's Earth

390

00:16:16,790 --> 00:16:13,740

observing satellite jpss2 on a United

391

00:16:18,470 --> 00:16:16,800

launch Alliance Atlas 5. once in orbit

392

00:16:20,329 --> 00:16:18,480

the satellite separates and the payload

393

00:16:22,850 --> 00:16:20,339

adapter canister surrounding lofted

394

00:16:24,650 --> 00:16:22,860

jettisons about 90 minutes after liftoff

395

00:16:26,329 --> 00:16:24,660

the lofted technology demonstration

396

00:16:27,470 --> 00:16:26,339

begins with the inflation of the

397

00:16:29,750 --> 00:16:27,480

AeroShell

398

00:16:31,550 --> 00:16:29,760

the upper stage of the rocket reorients

399

00:16:33,410 --> 00:16:31,560

and positions lofted for entry into

400

00:16:35,930 --> 00:16:33,420

Earth's atmosphere

401
00:16:37,790 --> 00:16:35,940
the re-entry vehicle spins and separates

402
00:16:40,129 --> 00:16:37,800
from the upper stage

403
00:16:42,769 --> 00:16:40,139
during re-entry sensors and cameras

404
00:16:44,389 --> 00:16:42,779
collect data a beacon transmits

405
00:16:46,910 --> 00:16:44,399
real-time data every 20 seconds

406
00:16:48,590 --> 00:16:46,920
throughout the mission

407
00:16:50,460 --> 00:16:48,600
several minutes into descent an

408
00:16:53,930 --> 00:16:50,470
ejectable data recorder releases

409
00:16:56,150 --> 00:16:53,940
[Music]

410
00:16:58,189 --> 00:16:56,160
about two hours after launch a parachute

411
00:17:00,290 --> 00:16:58,199
deploys and lofted splashes down in the

412
00:17:02,329 --> 00:17:00,300
ocean off the coast of Hawaii a team

413
00:17:04,850 --> 00:17:02,339

from NASA and Ula recover the data

414

00:17:06,530 --> 00:17:04,860

recorder and AeroShell this test will

415

00:17:07,909 --> 00:17:06,540

help inform entry descent and Landing

416

00:17:11,809 --> 00:17:07,919

Technologies for future human

417

00:17:15,650 --> 00:17:13,909

now before arriving at Vandenberg the

418

00:17:17,449 --> 00:17:15,660

heat shield under one's environmental

419

00:17:19,669 --> 00:17:17,459

testing at NASA's Langley Research

420

00:17:21,890 --> 00:17:19,679

Center in Hampton Virginia to make sure

421

00:17:23,150 --> 00:17:21,900

it was flight ready NASA's Angelique

422

00:17:24,470 --> 00:17:23,160

caring is at Langley with what

423

00:17:29,990 --> 00:17:24,480

researchers hope to learn this morning

424

00:17:34,130 --> 00:17:32,690

good morning Megan I'm here outside of

425

00:17:35,750 --> 00:17:34,140

the flight Mission support center where

426
00:17:37,610 --> 00:17:35,760
we've got some members of the Langley

427
00:17:39,470 --> 00:17:37,620
lofted team here and they're going to be

428
00:17:41,930 --> 00:17:39,480
taking in data from today's exciting

429
00:17:43,430 --> 00:17:41,940
demonstration now all the data that they

430
00:17:45,529 --> 00:17:43,440
take in today is actually going to help

431
00:17:47,810 --> 00:17:45,539
them to develop the hi-ad technology

432
00:17:50,270 --> 00:17:47,820
even further high ad standing for

433
00:17:52,310 --> 00:17:50,280
Hypersonic inflatable aerodynamic

434
00:17:54,110 --> 00:17:52,320
decelerator essentially an inflatable

435
00:17:56,390 --> 00:17:54,120
heat shield and this inflatable heat

436
00:17:58,130 --> 00:17:56,400
shield technology could help us to not

437
00:18:00,350 --> 00:17:58,140
only travel farther bringing more things

438
00:18:02,510 --> 00:18:00,360

with us as we continue to explore outer

439

00:18:05,390 --> 00:18:02,520

space but also to do so more sustainably

440

00:18:07,909 --> 00:18:05,400

which is incredibly exciting now for

441

00:18:09,830 --> 00:18:07,919

today's demonstration once the re-entry

442

00:18:11,390 --> 00:18:09,840

vehicle actually powers on we'll have a

443

00:18:13,970 --> 00:18:11,400

beacon on board that will be relaying

444

00:18:16,610 --> 00:18:13,980

data to us every 20 seconds now that

445

00:18:19,070 --> 00:18:16,620

data the health and Telemetry data along

446

00:18:20,390 --> 00:18:19,080

with the real-time location data will be

447

00:18:22,430 --> 00:18:20,400

monitored right here at the flight

448

00:18:24,529 --> 00:18:22,440

Mission support center additionally

449

00:18:26,029 --> 00:18:24,539

we'll be getting some imagery and other

450

00:18:28,250 --> 00:18:26,039

data coming in from the many different

451
00:18:29,690 --> 00:18:28,260
cameras and sensors on board so make

452
00:18:32,029 --> 00:18:29,700
sure you stay tuned in for all those

453
00:18:33,710 --> 00:18:32,039
update States and so much more back over

454
00:18:36,409 --> 00:18:33,720
to you Megan

455
00:18:38,870 --> 00:18:36,419
now today is dedicated to two very

456
00:18:40,850 --> 00:18:38,880
special people we have a picture of

457
00:18:43,370 --> 00:18:40,860
their names engraved on the rocket there

458
00:18:46,490 --> 00:18:43,380
you see Bernard cutter and Mark Levesque

459
00:18:48,169 --> 00:18:46,500
cutter was a Ula engineer who had a

460
00:18:50,390 --> 00:18:48,179
special interest in inflatable heat

461
00:18:52,430 --> 00:18:50,400
shields he was an advocate for a lower

462
00:18:53,810 --> 00:18:52,440
cost access to space and the

463
00:18:56,330 --> 00:18:53,820

technologies that could make that a

464

00:18:57,890 --> 00:18:56,340

reality cutter took interest in NASA's

465

00:19:00,409 --> 00:18:57,900

heat shield technology which could

466

00:19:02,870 --> 00:19:00,419

enable the safe return of Vulcan rocket

467

00:19:06,289 --> 00:19:02,880

engines as part of ula's reuse program

468

00:19:08,750 --> 00:19:06,299

as well as land's large payloads on Mars

469

00:19:11,390 --> 00:19:08,760

but sadly cutter passed away in August

470

00:19:13,730 --> 00:19:11,400

2020 before getting to see the

471

00:19:15,890 --> 00:19:13,740

inflatable technology in use

472

00:19:18,230 --> 00:19:15,900

we also have Mark Levesque he was an

473

00:19:20,990 --> 00:19:18,240

aerospace engineer and launch conductor

474

00:19:24,049 --> 00:19:21,000

for Missions launching on Delta II Delta

475

00:19:26,630 --> 00:19:24,059

IV and Atlas 5 Rockets after an early

476

00:19:28,730 --> 00:19:26,640

retirement from Ula Levesque worked on

477

00:19:31,070 --> 00:19:28,740

special projects for NASA's launch

478

00:19:33,710 --> 00:19:31,080

Services Program after a long battle

479

00:19:35,750 --> 00:19:33,720

with cancer Levesque passed away last

480

00:19:38,029 --> 00:19:35,760

year we're going to talk more about both

481

00:19:41,330 --> 00:19:38,039

men's contributions to space exploration

482

00:19:45,230 --> 00:19:43,310

Now tracking and understanding climate

483

00:19:47,150 --> 00:19:45,240

change is a big priority for NASA so

484

00:19:49,970 --> 00:19:47,160

joining me now is Dr Thomas zerbukin

485

00:19:51,770 --> 00:19:49,980

associate administrator of NASA science

486

00:19:53,930 --> 00:19:51,780

Mission directorate good morning to you

487

00:19:54,950 --> 00:19:53,940

Dr Z hey good morning glad to have you

488

00:19:56,930 --> 00:19:54,960

here you know I want to talk to you

489

00:19:59,150 --> 00:19:56,940

about NASA and Noah um you know they've

490

00:20:00,770 --> 00:19:59,160

been monitoring our planet together for

491

00:20:02,450 --> 00:20:00,780

more than six decades you know what do

492

00:20:03,590 --> 00:20:02,460

you think about this partnership well

493

00:20:05,510 --> 00:20:03,600

it's one of the most productive

494

00:20:08,029 --> 00:20:05,520

Partnerships in the U.S Garmin and

495

00:20:10,250 --> 00:20:08,039

frankly worldwide we've built the

496

00:20:12,830 --> 00:20:10,260

spacecraft we've worked together and

497

00:20:15,830 --> 00:20:12,840

we've also built models we've done

498

00:20:19,190 --> 00:20:15,840

science that we then turn over to to

499

00:20:21,350 --> 00:20:19,200

know our partners who are using it each

500

00:20:23,150 --> 00:20:21,360

and every day to help our citizens and

501
00:20:25,010 --> 00:20:23,160
Beyond yeah and specifically looking

502
00:20:26,930 --> 00:20:25,020
into climate change like we were talking

503
00:20:29,450 --> 00:20:26,940
about you know what are the effects of

504
00:20:31,430 --> 00:20:29,460
our climate changing so drastically and

505
00:20:33,830 --> 00:20:31,440
how are we as NASA trying to address

506
00:20:36,289 --> 00:20:33,840
that so climate change is a hugely

507
00:20:38,450 --> 00:20:36,299
personal thing for all of us we may not

508
00:20:40,669 --> 00:20:38,460
notice it every day but it's affecting

509
00:20:43,789 --> 00:20:40,679
our lives in a direct fashion some of

510
00:20:47,150 --> 00:20:43,799
the changes are slow you know three like

511
00:20:49,970 --> 00:20:47,160
this much is the water level around the

512
00:20:53,029 --> 00:20:49,980
uh the world going up each year you know

513
00:20:55,310 --> 00:20:53,039

three four millimeters and so forth but

514

00:20:58,549 --> 00:20:55,320

there's also really drastic changes

515

00:21:00,650 --> 00:20:58,559

which are more stars more fires that

516

00:21:02,930 --> 00:21:00,660

really are affecting our property and

517

00:21:04,669 --> 00:21:02,940

our affecting lives and I think both of

518

00:21:07,130 --> 00:21:04,679

these really matter the abundance of

519

00:21:09,529 --> 00:21:07,140

these events but also the slower changes

520

00:21:11,990 --> 00:21:09,539

and tracking it helps us to address it

521

00:21:14,270 --> 00:21:12,000

so so that's why we do the things like

522

00:21:16,850 --> 00:21:14,280

this with Noah I do also want to talk

523

00:21:18,289 --> 00:21:16,860

about that after jps2 launches NASA

524

00:21:20,630 --> 00:21:18,299

will test this new inflatable heat

525

00:21:23,390 --> 00:21:20,640

shield if all goes well how could this

526
00:21:25,130 --> 00:21:23,400
technology revolutionize space travel oh

527
00:21:26,690 --> 00:21:25,140
we're I'm really psyched about this of

528
00:21:29,210 --> 00:21:26,700
course you know we at the science

529
00:21:31,669 --> 00:21:29,220
machine director have inhabited Mars

530
00:21:34,669 --> 00:21:31,679
with robots for 20 years and we're there

531
00:21:37,010 --> 00:21:34,679
right now with a land or a rover you

532
00:21:39,110 --> 00:21:37,020
know it's fine companion Ingenuity but

533
00:21:41,270 --> 00:21:39,120
we want to go there with humans first of

534
00:21:43,789 --> 00:21:41,280
all with Artemis to the moon and then to

535
00:21:45,710 --> 00:21:43,799
Mars but to land on Mars we need new

536
00:21:48,289 --> 00:21:45,720
technology and it's this lofted

537
00:21:50,810 --> 00:21:48,299
technology that we believe is absolutely

538
00:21:52,970 --> 00:21:50,820

essential for us to do that so so it's a

539

00:21:54,950 --> 00:21:52,980

huge stop in my mind that you'd step in

540

00:21:56,750 --> 00:21:54,960

the direction of human exploration of

541

00:21:58,909 --> 00:21:56,760

Mars I have a you're going to be glued

542

00:22:00,890 --> 00:21:58,919

to the screen watching the flight test

543

00:22:02,870 --> 00:22:00,900

today that's right I'd like to teleport

544

00:22:05,149 --> 00:22:02,880

to Hawaii to see it coming now we'll

545

00:22:06,409 --> 00:22:05,159

take me with you if you do that thank

546

00:22:10,669 --> 00:22:06,419

you Dr Z I appreciate your time

547

00:22:12,649 --> 00:22:10,679

appreciate it thanks and after jpss2 uh

548

00:22:15,350 --> 00:22:12,659

uh comes other satellites and we'll talk

549

00:22:17,090 --> 00:22:15,360

to you more about that but jvss2 comes a

550

00:22:18,710 --> 00:22:17,100

decade after the first one launched in

551
00:22:20,330 --> 00:22:18,720
the series so let's take a look at how

552
00:22:23,270 --> 00:22:20,340
that satellite has helped us over the

553
00:22:23,280 --> 00:22:28,550
foreign

554
00:22:28,560 --> 00:22:36,250
[Music]

555
00:22:41,750 --> 00:22:38,870
Suite of instruments took to the skies

556
00:22:44,390 --> 00:22:41,760
aboard the first of a series of polar

557
00:22:47,570 --> 00:22:44,400
orbiting weather satellites known as The

558
00:22:50,870 --> 00:22:47,580
Joint polar satellite system this is the

559
00:22:54,529 --> 00:22:50,880
story of a satellite that led the way

560
00:22:56,990 --> 00:22:54,539
it has measured storms fires volcanoes

561
00:22:57,649 --> 00:22:57,000
and oceans changing the way we view the

562
00:23:00,470 --> 00:22:57,659
Earth

563
00:23:02,450 --> 00:23:00,480

improving our weather forecasts and

564

00:23:05,990 --> 00:23:02,460

carrying on critical long-term

565

00:23:10,190 --> 00:23:06,000

measurements of our planet for three two

566

00:23:14,750 --> 00:23:10,200

main engine start one zero and liftoff

567

00:23:17,270 --> 00:23:14,760

on October 28th 2011 the Sumi NPP

568

00:23:19,909 --> 00:23:17,280

satellite lifted off on a Delta II

569

00:23:23,029 --> 00:23:19,919

rocket from Vandenberg California

570

00:23:25,310 --> 00:23:23,039

named after Werner Sumi who invented the

571

00:23:27,289 --> 00:23:25,320

first spin scan camera to observe

572

00:23:29,270 --> 00:23:27,299

weather from space

573

00:23:31,730 --> 00:23:29,280

satellite marked the beginning of

574

00:23:34,310 --> 00:23:31,740

another New Era The Joint polar

575

00:23:36,710 --> 00:23:34,320

satellite system a mission to provide

576
00:23:39,049 --> 00:23:36,720
valuable weather and environmental data

577
00:23:42,590 --> 00:23:39,059
into the 2030s

578
00:23:44,870 --> 00:23:42,600
and during the last decade Sumi NPP has

579
00:23:48,830 --> 00:23:44,880
become well known for its Blue Marble

580
00:23:51,710 --> 00:23:48,840
images and also its Day Night band which

581
00:23:53,750 --> 00:23:51,720
show us power outages after storms and

582
00:23:56,750 --> 00:23:53,760
human activities at night such as

583
00:23:58,850 --> 00:23:56,760
highways sea travel and natural gas

584
00:24:01,370 --> 00:23:58,860
flares

585
00:24:03,950 --> 00:24:01,380
continuing observations begun by

586
00:24:06,830 --> 00:24:03,960
satellites like NASA's Terra aqua and

587
00:24:09,169 --> 00:24:06,840
aura it allows for a number of products

588
00:24:13,250 --> 00:24:09,179

that help people on the ground

589

00:24:15,529 --> 00:24:13,260

data allows us to map wildfires track

590

00:24:17,570 --> 00:24:15,539

the movement of wildfire smoke and then

591

00:24:19,490 --> 00:24:17,580

measure the air quality as that smoke

592

00:24:22,070 --> 00:24:19,500

moves through an area

593

00:24:24,230 --> 00:24:22,080

measure the insides of hurricanes and

594

00:24:26,210 --> 00:24:24,240

reveal the structure and intensity of a

595

00:24:28,310 --> 00:24:26,220

storm and the ocean's surface

596

00:24:30,350 --> 00:24:28,320

temperature that fuels it

597

00:24:32,210 --> 00:24:30,360

track the health of major crops

598

00:24:34,970 --> 00:24:32,220

worldwide by showing how they're

599

00:24:37,430 --> 00:24:34,980

impacted by weather and temperature

600

00:24:39,950 --> 00:24:37,440

and measure emissions from volcanoes

601
00:24:41,750 --> 00:24:39,960
that help determine air quality and

602
00:24:45,289 --> 00:24:41,760
visibility for Pilots

603
00:24:46,970 --> 00:24:45,299
over the last 10 years NPP data has

604
00:24:50,270 --> 00:24:46,980
increased our understanding of major

605
00:24:53,570 --> 00:24:50,280
events the Australian Bushfire

606
00:24:56,029 --> 00:24:53,580
Saharan dust storms across the Atlantic

607
00:24:58,190 --> 00:24:56,039
and Emissions decreases from the global

608
00:25:00,710 --> 00:24:58,200
pandemic

609
00:25:03,470 --> 00:25:00,720
The Joint polar satellite system's next

610
00:25:06,590 --> 00:25:03,480
satellite launched six years later in

611
00:25:09,350 --> 00:25:06,600
2017. and its sister satellites will

612
00:25:11,750 --> 00:25:09,360
launch over the next decade continuing

613
00:25:12,650 --> 00:25:11,760

these kinds of vital measurements in the

614

00:25:14,990 --> 00:25:12,660

years to come

615

00:25:16,789 --> 00:25:15,000

[Music]

616

00:25:19,070 --> 00:25:16,799

and those two remaining sister

617

00:25:24,950 --> 00:25:19,080

satellites will be nearly identical to

618

00:25:27,649 --> 00:25:24,960

jpss2 jpss 3 will launch in 2027 jpss4

619

00:25:31,730 --> 00:25:27,659

in 2032.

620

00:25:33,350 --> 00:25:31,740

okay we're now 14 minutes 27 seconds to

621

00:25:35,269 --> 00:25:33,360

lift off let's head back over to Daryl

622

00:25:37,970 --> 00:25:35,279

and Mick as they await the NASA launch

623

00:25:39,409 --> 00:25:37,980

manager poll that's right Megan we are

624

00:25:42,110 --> 00:25:39,419

here at the mission director's Center

625

00:25:44,630 --> 00:25:42,120

listening into the loops and the teams

626
00:25:46,850 --> 00:25:44,640
discussing a number of things we've got

627
00:25:49,010 --> 00:25:46,860
that poll coming up at L minus 13

628
00:25:50,990 --> 00:25:49,020
minutes currently that's about a minute

629
00:25:52,669 --> 00:25:51,000
and 10 minutes away there you can see

630
00:25:56,330 --> 00:25:52,679
the Ula launch Team

631
00:25:58,669 --> 00:25:56,340
and uh NASA launch manager Omar Baez who

632
00:26:00,769 --> 00:25:58,679
is in the second row a second person

633
00:26:02,210 --> 00:26:00,779
from the left uh you can see him on the

634
00:26:03,409 --> 00:26:02,220
phone there he is the one who will be

635
00:26:06,590 --> 00:26:03,419
conducting the poll that will be

636
00:26:08,690 --> 00:26:06,600
listening into uh Mick quickly we know

637
00:26:11,269 --> 00:26:08,700
that the teams have been discussing a

638
00:26:12,769 --> 00:26:11,279

matter regarding Centaur locks what can

639

00:26:14,870 --> 00:26:12,779

you tell us about that and where do we

640

00:26:17,149 --> 00:26:14,880

stand yeah so the team's been discussing

641

00:26:20,330 --> 00:26:17,159

uh a valve issue they've had they've

642

00:26:22,549 --> 00:26:20,340

been uh following all evening and

643

00:26:24,110 --> 00:26:22,559

thought they had under control and now

644

00:26:26,169 --> 00:26:24,120

they're continuing to look at that as

645

00:26:28,789 --> 00:26:26,179

they as they move forward

646

00:26:31,190 --> 00:26:28,799

NASA launch manager Omar Baez is talking

647

00:26:33,590 --> 00:26:31,200

with the Ula launch director Paul Aragon

648

00:26:35,029 --> 00:26:33,600

about the go forward plan the

649

00:26:37,310 --> 00:26:35,039

engineering teams are looking at all the

650

00:26:40,549 --> 00:26:37,320

data and trying to assess where we are

651
00:26:44,090 --> 00:26:40,559
as we get ready uh or get close to 100

652
00:26:46,730 --> 00:26:44,100
percent uh fill and Topping of the atlas

653
00:26:48,049 --> 00:26:46,740
and Centaur tanks of liquid oxygen so

654
00:26:50,149 --> 00:26:48,059
the team is still working in that as

655
00:26:53,090 --> 00:26:50,159
we're in this built-in hold and they

656
00:26:59,390 --> 00:26:53,100
continue to assess where they're going

657
00:27:01,610 --> 00:26:59,400
gonna delay the L minus 13. poll and

658
00:27:03,590 --> 00:27:01,620
work through the uh finishing the

659
00:27:04,970 --> 00:27:03,600
topping of the logs tank here and make

660
00:27:08,930 --> 00:27:04,980
sure

661
00:27:11,750 --> 00:27:08,940
we target a correct t-zero it it looks

662
00:27:13,310 --> 00:27:11,760
like we've uh blown through the first

663
00:27:17,149 --> 00:27:13,320

green block

664

00:27:20,330 --> 00:27:17,159

and the initial Target would be that 949

665

00:27:23,390 --> 00:27:20,340

UTC but let us work through that through

666

00:27:25,070 --> 00:27:23,400

this uh these final steps here before we

667

00:27:28,669 --> 00:27:25,080

re-establish

668

00:27:32,690 --> 00:27:28,679

and uh and I'll come back with a

669

00:27:34,430 --> 00:27:32,700

good Target for the uh final Pole

670

00:27:36,289 --> 00:27:34,440

so Daryl there we heard uh launch

671

00:27:37,730 --> 00:27:36,299

director or launch manager Omar Baez

672

00:27:39,830 --> 00:27:37,740

talking about them working through it

673

00:27:42,409 --> 00:27:39,840

and targeting a new t0 that they're

674

00:27:44,149 --> 00:27:42,419

going to negotiate uh and we'll see how

675

00:27:46,610 --> 00:27:44,159

that goes as we head into this uh

676
00:27:49,730 --> 00:27:46,620
topping of locks

677
00:27:52,130 --> 00:27:49,740
so indeed we have a 36 minute window for

678
00:27:55,070 --> 00:27:52,140
the launch today and so the team looking

679
00:27:57,890 --> 00:27:55,080
at the possibility of using some of that

680
00:28:00,049 --> 00:27:57,900
window uh Mick and real quickly we do

681
00:28:01,549 --> 00:28:00,059
know there's a cola at the fourth minute

682
00:28:03,289 --> 00:28:01,559
that they're going to be aware of if

683
00:28:05,149 --> 00:28:03,299
they do go into this window yes we heard

684
00:28:07,909 --> 00:28:05,159
Omar say he would be targeting his first

685
00:28:10,549 --> 00:28:07,919
attempt would be 129 that's because the

686
00:28:13,010 --> 00:28:10,559
minute at 128 is unavailable to us due

687
00:28:15,590 --> 00:28:13,020
to a possible Cola avoidance of another

688
00:28:17,510 --> 00:28:15,600

satellite so they would start with 129

689

00:28:19,490 --> 00:28:17,520

and then work down from there all right

690

00:28:22,010 --> 00:28:19,500

thank you Mick and we'll be tracking the

691

00:28:25,490 --> 00:28:22,020

countdown as we go as well as monitoring

692

00:28:28,549 --> 00:28:25,500

any changes to the countdown and the t0

693

00:28:30,649 --> 00:28:28,559

but for now we'll send it back to Megan

694

00:28:32,870 --> 00:28:30,659

thank you for that update Daryl and Mick

695

00:28:34,789 --> 00:28:32,880

NASA's launch Services program helps

696

00:28:36,830 --> 00:28:34,799

launch the satellites which NOAA will

697

00:28:39,230 --> 00:28:36,840

then operate NASA's Jasmine Hopkins

698

00:28:43,909 --> 00:28:39,240

shows us how NOAA continues its Legacy

699

00:28:49,010 --> 00:28:46,130

joining us now is Dr Michael Morgan

700

00:28:50,930 --> 00:28:49,020

assistant Secretary of Commerce for

701
00:28:52,909 --> 00:28:50,940
environmental observation and prediction

702
00:28:54,590 --> 00:28:52,919
from NOAA thank you so much for joining

703
00:28:56,210 --> 00:28:54,600
us Dr Morgan thank you very much Jasmine

704
00:28:58,970 --> 00:28:56,220
great we are so happy to have you here

705
00:29:01,190 --> 00:28:58,980
so you have been working uh for Noah in

706
00:29:03,409 --> 00:29:01,200
a very large role can you tell us about

707
00:29:05,330 --> 00:29:03,419
the NOAA and NASA partnership why is

708
00:29:08,090 --> 00:29:05,340
that so important that partnership is

709
00:29:09,710 --> 00:29:08,100
important because NOAA maintains an

710
00:29:11,570 --> 00:29:09,720
observational portfolio that's

711
00:29:13,310 --> 00:29:11,580
authoritative and the analyzes and

712
00:29:15,049 --> 00:29:13,320
predictions that we do are important but

713
00:29:18,110 --> 00:29:15,059

in order for us to achieve this our

714

00:29:21,049 --> 00:29:18,120

mission we work closely with NASA in

715

00:29:23,930 --> 00:29:21,059

partnering to develop and build our

716

00:29:25,610 --> 00:29:23,940

satellites and help launch them and also

717

00:29:26,930 --> 00:29:25,620

NASA helps us with our ground stations

718

00:29:28,610 --> 00:29:26,940

as well to track the satellites

719

00:29:31,130 --> 00:29:28,620

additionally separate from our

720

00:29:34,070 --> 00:29:31,140

observational portfolio our Global model

721

00:29:35,750 --> 00:29:34,080

shares the same dynamical core as NASA's

722

00:29:37,549 --> 00:29:35,760

oh wow and you've been working pretty

723

00:29:38,810 --> 00:29:37,559

closely with those different models I

724

00:29:41,690 --> 00:29:38,820

understand that you've been tracking

725

00:29:43,549 --> 00:29:41,700

things with ground and radar so how does

726

00:29:45,769 --> 00:29:43,559

the information from NOAA help us across

727

00:29:47,990 --> 00:29:45,779

the board from policy making to

728

00:29:50,990 --> 00:29:48,000

different prices and things well with

729

00:29:52,190 --> 00:29:51,000

this particular satellite jpss2 the data

730

00:29:54,230 --> 00:29:52,200

is going to be important for

731

00:29:56,690 --> 00:29:54,240

understanding the temperature and

732

00:29:58,730 --> 00:29:56,700

moisture structure of the atmosphere the

733

00:30:00,230 --> 00:29:58,740

vers instrument that's on this

734

00:30:03,769 --> 00:30:00,240

particular satellite which stands for

735

00:30:05,090 --> 00:30:03,779

Visible infrared Imaging radiometer is

736

00:30:06,590 --> 00:30:05,100

going to allow us to look at Ocean color

737

00:30:09,289 --> 00:30:06,600

which is important for identifying

738

00:30:11,389 --> 00:30:09,299

harmful algal blooms for severe weather

739

00:30:12,950 --> 00:30:11,399

forecasting for short to medium range

740

00:30:14,870 --> 00:30:12,960

forecasting these observations are

741

00:30:18,289 --> 00:30:14,880

imperative for us to have in order to

742

00:30:20,630 --> 00:30:18,299

have a high class prediction right and I

743

00:30:22,250 --> 00:30:20,640

also understand that JPS has two like

744

00:30:24,169 --> 00:30:22,260

the other weather satellites from NOAA

745

00:30:25,669 --> 00:30:24,179

really help us understand climate change

746

00:30:28,430 --> 00:30:25,679

and they've been doing that for decades

747

00:30:31,250 --> 00:30:28,440

so what is jpss2 adding to that well

748

00:30:34,370 --> 00:30:31,260

jpss2 adds it really maintains a

749

00:30:36,950 --> 00:30:34,380

continuity of our observations of the

750

00:30:39,710 --> 00:30:36,960

ozone in the upper troposphere lower

751

00:30:42,110 --> 00:30:39,720

Stratosphere that's important for the

752

00:30:43,730 --> 00:30:42,120

radiation protecting us from the harmful

753

00:30:46,370 --> 00:30:43,740

ultraviolet radiation which can reach

754

00:30:48,409 --> 00:30:46,380

the surface so by accurately measuring

755

00:30:50,930 --> 00:30:48,419

the ozone quantities as well as clouds

756

00:30:53,510 --> 00:30:50,940

we can improve our forecast of UV at the

757

00:30:55,250 --> 00:30:53,520

surface the long climate record that's

758

00:30:58,010 --> 00:30:55,260

maintained by these satellites both for

759

00:30:59,630 --> 00:30:58,020

temperature and water vapor help to

760

00:31:01,970 --> 00:30:59,640

build a long extensive climate record

761

00:31:06,110 --> 00:31:01,980

which we can then validate with our

762

00:31:10,970 --> 00:31:08,750

as a kid I got excited about NASA by

763

00:31:14,510 --> 00:31:10,980

watching the launches of the Apollo

764

00:31:16,130 --> 00:31:14,520

Mission and it was great just prior to

765

00:31:17,870 --> 00:31:16,140

launch having an opportunity to walk by

766

00:31:20,810 --> 00:31:17,880

the spacecraft and see both the NOAA

767

00:31:22,970 --> 00:31:20,820

logo as well as the NASA logo on these

768

00:31:24,769 --> 00:31:22,980

machines on these sorry on this rocket

769

00:31:27,649 --> 00:31:24,779

right and it just really was just

770

00:31:30,110 --> 00:31:27,659

incredible but the partnership the work

771

00:31:32,750 --> 00:31:30,120

that's been done by NASA and by the

772

00:31:35,630 --> 00:31:32,760

contractors and by folks within NOAA to

773

00:31:37,070 --> 00:31:35,640

make this a reality I think it's just

774

00:31:38,450 --> 00:31:37,080

incredible and I really thank them for

775

00:31:39,889 --> 00:31:38,460

that right exactly it's great to see

776

00:31:41,690 --> 00:31:39,899

this partnership working together for

777

00:31:43,490 --> 00:31:41,700

launch Dr Morgan thank you so much for

778

00:31:45,350 --> 00:31:43,500

joining us today thank you of course

779

00:31:48,529 --> 00:31:45,360

back to you

780

00:31:51,470 --> 00:31:48,539

as we've said after jpss2 we will test a

781

00:31:54,350 --> 00:31:51,480

new inflatable heat shield so that we

782

00:31:57,110 --> 00:31:54,360

could one day go to the surface of Mars

783

00:31:59,330 --> 00:31:57,120

and lofted that heat shield will help us

784

00:32:02,210 --> 00:31:59,340

do that but before that we're returning

785

00:32:03,889 --> 00:32:02,220

to the Moon in just six days NASA will

786

00:32:05,990 --> 00:32:03,899

attempt to launch this rocket and

787

00:32:08,149 --> 00:32:06,000

spacecraft from Kennedy Space Center

788

00:32:10,070 --> 00:32:08,159

you're watching video from when teams

789

00:32:13,070 --> 00:32:10,080

rolled it all the to the launch pad last

790

00:32:15,350 --> 00:32:13,080

week the Artemis one flight test will be

791

00:32:18,230 --> 00:32:15,360

the first of increasingly complex

792

00:32:21,110 --> 00:32:18,240

missions to eventually return humans to

793

00:32:22,850 --> 00:32:21,120

the lunar surface the last time humans

794

00:32:25,669 --> 00:32:22,860

stepped foot on the moon was 50 years

795

00:32:27,289 --> 00:32:25,679

ago scan the QR code on your screen to

796

00:32:29,510 --> 00:32:27,299

learn more about the upcoming launch

797

00:32:31,850 --> 00:32:29,520

attempt on November 16th so just six

798

00:32:37,010 --> 00:32:31,860

days from now and what's planned for our

799

00:32:40,490 --> 00:32:38,690

we're going to check back in with Daryl

800

00:32:42,350 --> 00:32:40,500

and Mick now they had an update for us a

801
00:32:44,510 --> 00:32:42,360
couple of Min of minutes ago that the

802
00:32:45,769 --> 00:32:44,520
launch manager poll was delayed let's go

803
00:32:47,870 --> 00:32:45,779
back to them to see if they have any

804
00:32:50,570 --> 00:32:47,880
updates for us guys yeah thank you Megan

805
00:32:52,730 --> 00:32:50,580
we are currently at L minus seven

806
00:32:55,610 --> 00:32:52,740
minutes and Counting and expecting a

807
00:32:58,250 --> 00:32:55,620
poll from the launch conductor here in

808
00:33:11,990 --> 00:32:58,260
just a few seconds let's listen in

809
00:33:16,669 --> 00:33:13,610
now we heard some discussion on the

810
00:33:19,789 --> 00:33:16,679
loops Mick we know that the NASA launch

811
00:33:22,730 --> 00:33:19,799
manager poll which was at L minus 13

812
00:33:25,669 --> 00:33:22,740
minutes was delayed by a launch manager

813
00:33:28,549 --> 00:33:25,679

Omar Baez we're currently weighting the

814

00:33:31,909 --> 00:33:28,559

L minus 7 poll but we know they've been

815

00:33:33,649 --> 00:33:31,919

working some things yeah working that

816

00:33:35,990 --> 00:33:33,659

through this locks issue which now they

817

00:33:38,269 --> 00:33:36,000

have resolved and have a plan forward to

818

00:33:41,090 --> 00:33:38,279

do some manual monitoring and some work

819

00:33:43,610 --> 00:33:41,100

for topping of the atlas lox tank and

820

00:33:46,190 --> 00:33:43,620

the Centaur locks tank and I believe

821

00:33:49,009 --> 00:33:46,200

what we will be waiting on at this point

822

00:33:52,070 --> 00:33:49,019

Daryl is NASA the launch manager Omar

823

00:33:54,470 --> 00:33:52,080

Baez and launch director Paul Aragon to

824

00:33:58,549 --> 00:33:54,480

come up with a new t0 time we are

825

00:34:01,009 --> 00:33:58,559

definitely off of our 1 25 a.m uh launch

826

00:34:03,950 --> 00:34:01,019

attempt as you heard Omar say earlier we

827

00:34:04,850 --> 00:34:03,960

would look at 129 am would be the first

828

00:34:07,009 --> 00:34:04,860

one

829

00:34:08,329 --> 00:34:07,019

um but based on some of the discussions

830

00:34:10,490 --> 00:34:08,339

we heard I think we're going to be

831

00:34:13,210 --> 00:34:10,500

looking a little farther in there as

832

00:34:16,250 --> 00:34:13,220

they negotiate this time for a possible

833

00:34:18,050 --> 00:34:16,260

136 which would change some of the polls

834

00:34:20,329 --> 00:34:18,060

that we are working

835

00:34:22,730 --> 00:34:20,339

that's right and so as you mentioned

836

00:34:25,970 --> 00:34:22,740

looking for that new t0 we will continue

837

00:34:29,030 --> 00:34:25,980

to see the clock count down but uh just

838

00:34:32,530 --> 00:34:29,040

again I think what Mick said we will be

839

00:34:36,230 --> 00:34:32,540

looking for a new t0

840

00:34:39,710 --> 00:34:36,240

currently we have a 35 minute window

841

00:34:43,609 --> 00:34:39,720

with which to work and the launch Team

842

00:34:46,730 --> 00:34:43,619

then corresponds to a 30-minute hold

843

00:34:48,649 --> 00:34:46,740

which they can do at L minus four

844

00:34:51,109 --> 00:34:48,659

minutes where they sync up with the T

845

00:34:53,990 --> 00:34:51,119

clock talk a little bit about what we're

846

00:34:56,389 --> 00:34:54,000

seeing in terms of how that works the L

847

00:34:58,670 --> 00:34:56,399

clock just 60 seconds away from sync it

848

00:35:01,010 --> 00:34:58,680

up to that T minus four minutes where

849

00:35:02,990 --> 00:35:01,020

they can hold for a bit of time till

850

00:35:04,250 --> 00:35:03,000

they get this new t0 worked on yeah so

851
00:35:06,410 --> 00:35:04,260
throughout the count we have these

852
00:35:08,810 --> 00:35:06,420
built-in holes tonight's worth 30 minute

853
00:35:10,730 --> 00:35:08,820
holds just prior to cryogenic tanking at

854
00:35:13,609 --> 00:35:10,740
T minus two hours and then of course as

855
00:35:15,770 --> 00:35:13,619
you just mentioned the uh 30 minute hold

856
00:35:17,990 --> 00:35:15,780
prior to the T minus four and Counting

857
00:35:19,849 --> 00:35:18,000
and that we worked out on the L clock

858
00:35:23,569 --> 00:35:19,859
which is a clock that continues to count

859
00:35:26,750 --> 00:35:23,579
down through the count and the T time is

860
00:35:29,450 --> 00:35:26,760
the clock for liftoff as we get to off

861
00:35:31,730 --> 00:35:29,460
and as we said the clocks sync up at T

862
00:35:33,650 --> 00:35:31,740
minus four time and pick up the count

863
00:35:35,870 --> 00:35:33,660

there but as we can hear on the loops

864

00:35:38,810 --> 00:35:35,880

the team is definitely working to go

865

00:35:40,069 --> 00:35:38,820

ahead and try to figure out that new t0

866

00:35:42,349 --> 00:35:40,079

and where they're going to bring the

867

00:35:45,530 --> 00:35:42,359

clocks together

868

00:35:47,510 --> 00:35:45,540

now let's listen into the launches

869

00:35:49,849 --> 00:35:47,520

uh Roger probably because they're doing

870

00:35:52,550 --> 00:35:49,859

uh Pogo charge so

871

00:35:56,030 --> 00:35:52,560

after that locks one LC

872

00:35:58,910 --> 00:35:56,040

go yeah are you active with uh Atlas

873

00:36:00,349 --> 00:35:58,920

solo2 topping we're still trying to get

874

00:36:01,790 --> 00:36:00,359

the film drain valve open with the line

875

00:36:25,370 --> 00:36:01,800

chilled we haven't entered Pogo yet

876

00:36:29,390 --> 00:36:27,109

so we just heard uh some of the

877

00:36:36,050 --> 00:36:29,400

communications from the launch director

878

00:36:40,190 --> 00:36:38,390

yeah Daryl and what we've seen is the

879

00:36:41,930 --> 00:36:40,200

clocks have actually stopped at T minus

880

00:36:43,970 --> 00:36:41,940

four which means we're still in a T

881

00:36:46,790 --> 00:36:43,980

minus four and holding time and we're

882

00:36:48,950 --> 00:36:46,800

eating up part of that 36 minute window

883

00:36:51,950 --> 00:36:48,960

that we talked about in the window

884

00:36:54,349 --> 00:36:51,960

remaining is about 35 minutes now uh in

885

00:36:56,930 --> 00:36:54,359

in our uh tonight's launch uh

886

00:36:59,329 --> 00:36:56,940

availability and they'll continue to

887

00:37:02,150 --> 00:36:59,339

burn through that availability as they

888

00:37:04,490 --> 00:37:02,160

work through this prop uh problem and

889

00:37:05,870 --> 00:37:04,500

then they'll figure out the new t0 and

890

00:37:11,450 --> 00:37:05,880

clock

891

00:37:15,109 --> 00:37:11,460

previous t0 was 1 25 a.m Pacific time

892

00:37:17,450 --> 00:37:15,119

4 25 a.m Eastern Time

893

00:37:33,490 --> 00:37:17,460

for the launch of the jpss2

894

00:37:39,710 --> 00:37:36,770

so so yes we were listening through here

895

00:37:42,190 --> 00:37:39,720

as the team continues to work this issue

896

00:37:45,410 --> 00:37:42,200

with the topping they're at

897

00:37:47,390 --> 00:37:45,420

99.995 percent uh doing some Pogo

898

00:37:49,310 --> 00:37:47,400

charging on the first stage that's the

899

00:37:51,530 --> 00:37:49,320

topping just to be clear the topping of

900

00:37:53,690 --> 00:37:51,540

the locks on the Centaur equal oxygen

901
00:37:55,130 --> 00:37:53,700
tank correct Centaur locks and so we're

902
00:37:57,050 --> 00:37:55,140
doing some Pogo charging to get ready

903
00:38:00,170 --> 00:37:57,060
for liftoff which takes away a little

904
00:38:02,030 --> 00:38:00,180
bit of locks and so once that's done

905
00:38:04,150 --> 00:38:02,040
they'll start their slow fill again to

906
00:38:07,849 --> 00:38:04,160
get back to that 100 percent

907
00:38:09,950 --> 00:38:07,859
and I do know that we've heard NASA

908
00:38:12,170 --> 00:38:09,960
launch manager Omar Baez talking to the

909
00:38:15,410 --> 00:38:12,180
team spacecraft team engineering team

910
00:38:19,130 --> 00:38:15,420
and the Ula team looking for targeting a

911
00:38:21,890 --> 00:38:19,140
new t0 a little uh later this morning we

912
00:38:23,630 --> 00:38:21,900
have not heard the official t0 time so

913
00:38:25,790 --> 00:38:23,640

we're still counting down through that

914

00:38:29,270 --> 00:38:25,800

window that remains where we have about

915

00:38:32,750 --> 00:38:29,280

33 minutes left in that 36 minute window

916

00:38:35,150 --> 00:38:32,760

of availability today so we sit at T

917

00:38:37,370 --> 00:38:35,160

minus for and holding while the team

918

00:38:40,490 --> 00:38:37,380

continues this and and it's just so

919

00:38:43,609 --> 00:38:40,500

people understand this is a process the

920

00:38:46,250 --> 00:38:43,619

team has procedures in place and they

921

00:38:48,530 --> 00:38:46,260

are following them to the T and one of

922

00:38:49,730 --> 00:38:48,540

the low priority things is to re-sync

923

00:38:52,250 --> 00:38:49,740

the clocks right now as they work

924

00:38:54,109 --> 00:38:52,260

through this issue on the rocket so once

925

00:38:55,849 --> 00:38:54,119

they work through that then the team

926

00:38:58,130 --> 00:38:55,859

will come back around and sync the

927

00:38:59,930 --> 00:38:58,140

clocks back up and figure out where

928

00:39:02,329 --> 00:38:59,940

they're going from there but we have

929

00:39:04,670 --> 00:39:02,339

this T minus four hold in place for this

930

00:39:06,470 --> 00:39:04,680

reason to be able to work things and of

931

00:39:08,810 --> 00:39:06,480

course as we just continue working

932

00:39:11,810 --> 00:39:08,820

through the time that availability in

933

00:39:14,030 --> 00:39:11,820

the window just dwindles down so ever so

934

00:39:16,970 --> 00:39:14,040

slightly and you're looking live inside

935

00:39:19,910 --> 00:39:16,980

the launch room at the United launch

936

00:39:22,370 --> 00:39:19,920

Alliance Headquarters here at Vandenberg

937

00:39:25,550 --> 00:39:22,380

space Force Base

938

00:39:29,210 --> 00:39:25,560

as they currently uh as Mick said

939

00:39:31,430 --> 00:39:29,220

working through the Centaur locks issue

940

00:39:34,849 --> 00:39:31,440

and we have heard them discuss the

941

00:39:37,370 --> 00:39:34,859

possibility of a new to

942

00:39:40,670 --> 00:39:37,380

24 minutes off the original they're

943

00:39:43,790 --> 00:39:40,680

looking at the area of 1 49 a.m Pacific

944

00:39:45,730 --> 00:39:43,800

Time 4 49 a.m eastern time but they have

945

00:39:47,990 --> 00:39:45,740

not locked that in because as you said

946

00:39:51,109 --> 00:39:48,000

locking in the time isn't the priority

947

00:39:52,910 --> 00:39:51,119

currently working the matter at hand is

948

00:39:54,349 --> 00:39:52,920

yes we want to make sure the rocket is

949

00:39:56,150 --> 00:39:54,359

safe we want to make sure the spacecraft

950

00:39:58,730 --> 00:39:56,160

is safe we want to make sure

951
00:40:01,490 --> 00:39:58,740
everything's ready for launch and if we

952
00:40:02,990 --> 00:40:01,500
need to do something then we will work

953
00:40:04,790 --> 00:40:03,000
that so we'll use up as much of the

954
00:40:06,829 --> 00:40:04,800
window as we can as we continue to work

955
00:40:08,510 --> 00:40:06,839
this issue and then the team will make

956
00:40:11,329 --> 00:40:08,520
have to make a decision as we get down

957
00:40:14,329 --> 00:40:11,339
in those short Strokes of the remaining

958
00:40:17,089 --> 00:40:14,339
time but as you and I are listening to

959
00:40:18,710 --> 00:40:17,099
some of the engineering discussion the

960
00:40:21,109 --> 00:40:18,720
team is definitely following their

961
00:40:23,990 --> 00:40:21,119
procedures methodically going through

962
00:40:26,450 --> 00:40:24,000
some troubleshooting And discussing path

963
00:40:28,490 --> 00:40:26,460

forward so the team is doing exactly

964

00:40:30,589 --> 00:40:28,500

what they are training to do and make

965

00:40:32,270 --> 00:40:30,599

sure that the rocket and spacecraft are

966

00:40:35,630 --> 00:40:32,280

are still safe before going to lift off

967

00:40:38,210 --> 00:40:35,640

this morning be advised we are back into

968

00:40:42,349 --> 00:40:38,220

topping and we are picking up with the

969

00:40:46,430 --> 00:40:44,089

so there we heard we talked about Pogo

970

00:40:49,730 --> 00:40:46,440

charge earlier we heard the team uh just

971

00:40:52,370 --> 00:40:49,740

talking finally uh I have an expedited

972

00:40:54,530 --> 00:40:52,380

I'll brief for you go ahead okay so the

973

00:40:58,190 --> 00:40:54,540

team uh struggled but we did get the uh

974

00:40:59,390 --> 00:40:58,200

uh booster locks tank into topping uh we

975

00:41:04,190 --> 00:40:59,400

have reviewed the terminal count

976
00:41:06,710 --> 00:41:04,200
sequencing and uh have no uh different

977
00:41:09,349 --> 00:41:06,720
actions to take because of our condition

978
00:41:11,390 --> 00:41:09,359
with the 401 valve our recommendation is

979
00:41:14,089 --> 00:41:11,400
proceed as is the terminal count

980
00:41:16,490 --> 00:41:14,099
Roger

981
00:41:18,410 --> 00:41:16,500
well good news there yeah proceeding

982
00:41:20,890 --> 00:41:18,420
into terminal count they've gotten the

983
00:41:23,390 --> 00:41:20,900
issue with the booster locks a result

984
00:41:25,910 --> 00:41:23,400
yeah and that was great news to hear

985
00:41:28,130 --> 00:41:25,920
from anomaly Chief Dave McFarland from

986
00:41:29,210 --> 00:41:28,140
uh United launch Alliance to hear that

987
00:41:32,630 --> 00:41:29,220
they've resolved that and they've got

988
00:41:36,050 --> 00:41:32,640

into topping and um that they'll get

989

00:41:40,609 --> 00:41:38,690

see on one that's rlm go ahead

990

00:41:53,950 --> 00:41:40,619

booster locks is back within the band

991

00:41:58,730 --> 00:41:56,810

so Daryl yeah as we get ready to go now

992

00:42:02,030 --> 00:41:58,740

that they've resolved that we'll see

993

00:42:04,730 --> 00:42:02,040

what Omar Baez does with the t zero time

994

00:42:07,370 --> 00:42:04,740

and as he gets ready for uh polling and

995

00:42:09,710 --> 00:42:07,380

working uh that t-zero time and announce

996

00:42:12,650 --> 00:42:09,720

that though we'll reset the clocks to be

997

00:42:15,109 --> 00:42:12,660

able to sync up and move into terminal

998

00:42:18,410 --> 00:42:15,119

count as we heard uh anomaly Chief Dave

999

00:42:23,510 --> 00:42:18,420

McFarland recommendation to continue

1000

00:42:28,910 --> 00:42:26,630

so a little more time for the last Atlas

1001
00:42:31,609 --> 00:42:28,920
5 to launch from the West Coast here in

1002
00:42:31,619 --> 00:42:38,030
LC box one

1003
00:42:46,130 --> 00:42:39,650
LC last one

1004
00:42:49,670 --> 00:42:47,870
go ahead box one

1005
00:42:52,490 --> 00:42:49,680
Alice Ella two at play level

1006
00:42:55,130 --> 00:42:52,500
Roger so that's great news to hear that

1007
00:42:58,430 --> 00:42:55,140
the booster Atlas locks is at flight

1008
00:43:01,550 --> 00:42:58,440
level and they continue their topping of

1009
00:43:03,410 --> 00:43:01,560
that locks in the tank and so we'll

1010
00:43:05,690 --> 00:43:03,420
continue to move through the procedure

1011
00:43:08,510 --> 00:43:05,700
make sure locks is filled completely in

1012
00:43:11,690 --> 00:43:08,520
the atlas and the Centaur vehicle to

1013
00:43:13,370 --> 00:43:11,700

then get ready for a new t0 this morning

1014

00:43:15,770 --> 00:43:13,380

we are still counting down through the

1015

00:43:17,329 --> 00:43:15,780

window remaining Daryl we have about 28

1016

00:43:20,390 --> 00:43:17,339

minutes left in our window this morning

1017

00:43:21,829 --> 00:43:20,400

so the team I'm very happy to hear the

1018

00:43:24,589 --> 00:43:21,839

team is continuing to follow their

1019

00:43:26,750 --> 00:43:24,599

process of procedures work through all

1020

00:43:29,809 --> 00:43:26,760

the things they need to work through and

1021

00:43:32,150 --> 00:43:29,819

get us to a safe launch this morning

1022

00:43:34,370 --> 00:43:32,160

and we want to underscore the importance

1023

00:43:37,370 --> 00:43:34,380

of what was just said there with regards

1024

00:43:39,589 --> 00:43:37,380

to that flight level for the booster

1025

00:43:40,849 --> 00:43:39,599

that was a little bit of a sticking

1026

00:43:42,710 --> 00:43:40,859

point they were trying to get past and

1027

00:43:44,390 --> 00:43:42,720

that uh that's a great sign yeah as

1028

00:43:45,530 --> 00:43:44,400

anomaly Chief Dave McFarland mentioned

1029

00:43:47,809 --> 00:43:45,540

they were having some trouble with the

1030

00:43:49,730 --> 00:43:47,819

booster locks uh tank and getting ready

1031

00:43:51,890 --> 00:43:49,740

for topping they got that resolved and

1032

00:43:54,230 --> 00:43:51,900

have moved forward so absolutely it's a

1033

00:43:56,630 --> 00:43:54,240

great sign to hear that and uh as we

1034

00:43:58,910 --> 00:43:56,640

move into uh finalizing uh Centaur

1035

00:44:01,550 --> 00:43:58,920

topping and get everything ready for

1036

00:44:05,089 --> 00:44:01,560

flight levels and so we await the NASA

1037

00:44:08,750 --> 00:44:05,099

launch manager poll Omar Baez in his

1038

00:44:11,030 --> 00:44:08,760

last mission as NASA launch manager for

1039

00:44:12,710 --> 00:44:11,040

the launch Services Program

1040

00:44:16,250 --> 00:44:12,720

getting a little extra time in the seat

1041

00:44:20,030 --> 00:44:16,260

himself yeah Omar Omar did announce his

1042

00:44:22,670 --> 00:44:20,040

retirement uh uh for later in 2023 or

1043

00:44:26,030 --> 00:44:22,680

early 2023 so as you said his last

1044

00:44:30,109 --> 00:44:26,040

mission is LS uh NASA launch manager

1045

00:44:32,210 --> 00:44:30,119

here on the jpss2 mission and uh having

1046

00:44:35,450 --> 00:44:32,220

a little excitement yeah here in the

1047

00:44:50,930 --> 00:44:35,460

last few minutes of this launch of an

1048

00:44:56,930 --> 00:44:53,690

and so uh Omar indicated that he would

1049

00:44:58,970 --> 00:44:56,940

like to conduct his launch manager poll

1050

00:45:00,650 --> 00:44:58,980

when that is ready to go of course we'll

1051

00:45:02,870 --> 00:45:00,660

bring that to you

1052

00:45:05,089 --> 00:45:02,880

live as it's happening we're listening

1053

00:45:06,410 --> 00:45:05,099

in for an indication of when that might

1054

00:45:09,589 --> 00:45:06,420

start

1055

00:45:41,089 --> 00:45:09,599

at the same time they're also working on

1056

00:45:48,349 --> 00:45:43,670

as we look live at the atlas 5 all 19

1057

00:45:53,510 --> 00:45:50,809

at space launch complex 3 here at

1058

00:45:55,069 --> 00:45:53,520

Vandenberg space force a historic pad

1059

00:45:56,809 --> 00:45:55,079

here

1060

00:45:58,190 --> 00:45:56,819

yeah Daryl we talked about the 401

1061

00:45:59,930 --> 00:45:58,200

configuration earlier as the team

1062

00:46:01,430 --> 00:45:59,940

continues to work these things uh

1063

00:46:03,290 --> 00:46:01,440

interesting as we look at the rocket

1064

00:46:07,309 --> 00:46:03,300

here you will see the four meter fairing

1065

00:46:09,550 --> 00:46:07,319

on top uh it is the last four meter

1066

00:46:12,230 --> 00:46:09,560

fairing also for the atlas 5 program

1067

00:46:15,410 --> 00:46:12,240

built in Harlingen Texas hand painted

1068

00:46:18,230 --> 00:46:15,420

with the logos on board it is the EPF

1069

00:46:21,290 --> 00:46:18,240

the extended payload fairing uh that

1070

00:46:24,890 --> 00:46:21,300

Atlas offers in this configuration and

1071

00:46:27,710 --> 00:46:24,900

the reason we had to do that was J2 is

1072

00:46:29,870 --> 00:46:27,720

is the size of J2 and the height as

1073

00:46:31,609 --> 00:46:29,880

Megan pointed out earlier but we also

1074

00:46:34,430 --> 00:46:31,619

have that lofted mission that sits

1075

00:46:36,410 --> 00:46:34,440

underneath on a inside some canister

1076

00:46:38,329 --> 00:46:36,420

spacers so to be able to accommodate

1077

00:46:40,730 --> 00:46:38,339

both of those we needed this extended

1078

00:46:43,190 --> 00:46:40,740

Fairing and you know for me to see this

1079

00:46:45,109 --> 00:46:43,200

last uh four meter fairing launch from

1080

00:46:47,450 --> 00:46:45,119

space launch complex 3 is another

1081

00:46:50,270 --> 00:46:47,460

historic moment along with this last

1082

00:46:52,430 --> 00:46:50,280

Atlas five out of Vandenberg so just

1083

00:46:55,730 --> 00:46:52,440

another unique thing there you see great

1084

00:46:58,309 --> 00:46:55,740

shot logo yeah great shot of that

1085

00:47:01,849 --> 00:46:58,319

hand-painted logos of the jpss2 NOAA

1086

00:47:04,790 --> 00:47:01,859

NASA and lofted uh if it was it was

1087

00:47:07,130 --> 00:47:04,800

pretty cool to watch that being done by

1088

00:47:11,470 --> 00:47:07,140

the artist who's been doing them for the

1089

00:47:14,030 --> 00:47:11,480

last 25 years and so another great

1090

00:47:15,770 --> 00:47:14,040

historic moment for the atlas 5 program

1091

00:47:17,470 --> 00:47:15,780

it really is interesting as you look at

1092

00:47:20,750 --> 00:47:17,480

that four meter fairing to think about

1093

00:47:24,290 --> 00:47:20,760

how it actually has two vehicles in

1094

00:47:26,930 --> 00:47:24,300

there the spacecraft jpss2 which is at

1095

00:47:29,750 --> 00:47:26,940

the very top of that fairing inside if

1096

00:47:32,270 --> 00:47:29,760

you can Envision and then below it is

1097

00:47:36,950 --> 00:47:32,280

lofted contained in a payload launch

1098

00:47:38,990 --> 00:47:36,960

adapter and compressed all the way down

1099

00:47:41,510 --> 00:47:39,000

deflated I believe is what it's I say

1100

00:47:44,530 --> 00:47:41,520

inflated deflated deflated yeah that's

1101
00:47:47,809 --> 00:47:44,540
what's important one it will inflate yes

1102
00:47:52,250 --> 00:47:47,819
likely to coordinate a new t0 of zero

1103
00:47:56,450 --> 00:47:52,260
nine four nine zero zero you look

1104
00:47:59,089 --> 00:47:56,460
Roger rclc on one Roger please

1105
00:48:03,410 --> 00:47:59,099
coordinate a new t0 of zero nine colon

1106
00:48:06,650 --> 00:48:03,420
49 Zulu Roger and work and ALC

1107
00:48:09,890 --> 00:48:06,660
Elsie ALC Roger please set the countdown

1108
00:48:13,069 --> 00:48:09,900
clock for a new t0 of zero nine colon 49

1109
00:48:17,930 --> 00:48:13,079
Zulu zero nine four nine Roger so we got

1110
00:48:21,170 --> 00:48:17,940
a new t0 at 1 49 a.m Pacific time

1111
00:48:23,690 --> 00:48:21,180
4 49 a.m eastern time as you just heard

1112
00:48:26,990 --> 00:48:23,700
it called out by launch conductor Doug

1113
00:48:28,609 --> 00:48:27,000

Lebo and that's a great sign we're gonna

1114

00:48:31,490 --> 00:48:28,619

eat into the window a little bit but

1115

00:48:33,109 --> 00:48:31,500

we've got a new t0 yeah absolutely we've

1116

00:48:35,630 --> 00:48:33,119

we've eaten all right we've used that

1117

00:48:38,089 --> 00:48:35,640

part of that window remaining yes

1118

00:48:40,910 --> 00:48:38,099

obviously t-0 set for zero nine four

1119

00:48:42,770 --> 00:48:40,920

nine zero zero Roger which gives us

1120

00:48:45,230 --> 00:48:42,780

about 12 minutes left in the window if

1121

00:48:47,750 --> 00:48:45,240

we need it uh and we're now in the T

1122

00:48:51,050 --> 00:48:47,760

minus four hold uh with about 11 minutes

1123

00:48:53,390 --> 00:48:51,060

left in the hold so we're at uh L minus

1124

00:48:55,069 --> 00:48:53,400

15 minutes Daryl coming up so we should

1125

00:48:58,790 --> 00:48:55,079

be picking things back up with our

1126
00:49:03,470 --> 00:48:58,800
normal uh procedures 13 minutes

1127
00:49:07,609 --> 00:49:05,390
and so we'd be looking for that NASA

1128
00:49:10,910 --> 00:49:07,619
launch manager poll at L minus 13

1129
00:49:17,569 --> 00:49:10,920
minutes by Omar Baez and then we would

1130
00:49:23,870 --> 00:49:19,849
again if you're just joining us this is

1131
00:49:26,450 --> 00:49:23,880
the launch of jpss2 and lofted on an

1132
00:49:28,849 --> 00:49:26,460
atlas 5 rocket

1133
00:49:31,370 --> 00:49:28,859
off the western coast of California here

1134
00:49:32,950 --> 00:49:31,380
at the Vandenberg space Force Base

1135
00:49:35,809 --> 00:49:32,960
we've had a delay in our launch

1136
00:49:39,530 --> 00:49:35,819
originally scheduled for 1 25 a.m

1137
00:49:41,750 --> 00:49:39,540
Pacific time for 40 4 25 a.m Eastern

1138
00:49:44,510 --> 00:49:41,760

Time

1139

00:49:48,829 --> 00:49:44,520

we've got a 24-minute delay our new to

1140

00:49:49,910 --> 00:49:48,839

149 a.m Pacific Time 4 49 a.m Eastern

1141

00:49:52,309 --> 00:49:49,920

Time

1142

00:49:55,069 --> 00:49:52,319

the atlas 5 sitting on the launch pad at

1143

00:49:57,650 --> 00:49:55,079

space launch complex three

1144

00:49:59,870 --> 00:49:57,660

a historic launch complex Mick I know

1145

00:50:01,730 --> 00:49:59,880

you know it well and this will be the

1146

00:50:03,650 --> 00:50:01,740

last Atlas 5 that will lift off from

1147

00:50:07,010 --> 00:50:03,660

this pad before this pad gets

1148

00:50:09,650 --> 00:50:07,020

reconfigured for ula's Next Generation

1149

00:50:11,150 --> 00:50:09,660

rocket the Vulcan yeah Vulcan Centaur

1150

00:50:13,309 --> 00:50:11,160

will be the next and the team will start

1151
00:50:15,770 --> 00:50:13,319
making mods for that you know just like

1152
00:50:19,130 --> 00:50:15,780
we did back in 1999 when we mounted this

1153
00:50:22,309 --> 00:50:19,140
pad to go from original Atlas ICBM

1154
00:50:24,710 --> 00:50:22,319
Rockets to the atlas 2as part of the

1155
00:50:27,410 --> 00:50:24,720
atlas family and then extended the

1156
00:50:29,690 --> 00:50:27,420
mobile service tower for Atlas 5 as we

1157
00:50:33,170 --> 00:50:29,700
get ready to launch today so another

1158
00:50:35,150 --> 00:50:33,180
great performance by Atlas 5 here on the

1159
00:50:36,890 --> 00:50:35,160
West Coast for all the missions that

1160
00:50:39,890 --> 00:50:36,900
they have launched and we look forward

1161
00:50:43,190 --> 00:50:39,900
to closing out this part of the space

1162
00:50:47,030 --> 00:50:43,200
launch complex 3's historic history as

1163
00:50:50,210 --> 00:50:47,040

we get ready to hear from Omar Baez or

1164

00:50:52,849 --> 00:50:50,220

NASA launch manager on his nlm poll

1165

00:50:55,430 --> 00:50:52,859

yeah let's listen in now to uh

1166

00:50:59,950 --> 00:50:55,440

our nlm net as we call it the NASA

1167

00:51:10,370 --> 00:51:04,190

with our final launch poll NASA CE

1168

00:51:12,829 --> 00:51:10,380

NASA ce's goal SMA SMA is go SMD SMD is

1169

00:51:18,349 --> 00:51:12,839

go NASA Mission manager

1170

00:51:21,890 --> 00:51:18,359

that's what Mr managers go LSP LSPs go

1171

00:51:28,490 --> 00:51:24,950

so there we heard Daryl uh Omar Baez

1172

00:51:30,290 --> 00:51:28,500

complete the NASA poll getting ready to

1173

00:51:31,609 --> 00:51:30,300

go into terminal count and Omar then

1174

00:51:34,670 --> 00:51:31,619

will report out as part of the launch

1175

00:51:36,170 --> 00:51:34,680

conductor's poll at L minus seven uh and

1176

00:51:39,049 --> 00:51:36,180

it was just great to hear everybody

1177

00:51:41,210 --> 00:51:39,059

giving a go here that really makes me

1178

00:51:45,589 --> 00:51:41,220

feel good about the teamwork tonight

1179

00:51:47,569 --> 00:51:45,599

between the space force Ula NASA jpss2

1180

00:51:49,910 --> 00:51:47,579

and lofted all the teams working

1181

00:51:52,670 --> 00:51:49,920

together you know they have this issue

1182

00:51:54,710 --> 00:51:52,680

that delayed our our t0 a little bit but

1183

00:51:56,870 --> 00:51:54,720

they worked through it they got there we

1184

00:52:00,950 --> 00:51:56,880

reset the clock we're now targeting a 1

1185

00:52:03,170 --> 00:52:00,960

49 a.m Pacific Time liftoff and just

1186

00:52:04,910 --> 00:52:03,180

just hearing those goes gives me

1187

00:52:06,950 --> 00:52:04,920

confidence that you know we've worked

1188

00:52:11,870 --> 00:52:06,960

through these things and we can get J2

1189

00:52:17,690 --> 00:52:14,870

and from the shot there you can see the

1190

00:52:20,329 --> 00:52:17,700

liquid oxygen that's being vented off by

1191

00:52:21,890 --> 00:52:20,339

control LC

1192

00:52:24,530 --> 00:52:21,900

go ahead

1193

00:52:29,450 --> 00:52:24,540

perform long-term time verification

1194

00:52:32,990 --> 00:52:31,309

venting off the locks for the first

1195

00:52:34,670 --> 00:52:33,000

stage in the lower part the middle part

1196

00:52:37,309 --> 00:52:34,680

of your screen

1197

00:52:40,309 --> 00:52:37,319

and then the venting of the centaur

1198

00:52:40,319 --> 00:52:44,329

Atlas is fully Tanked

1199

00:52:44,339 --> 00:52:49,549

foreign

1200

00:52:55,730 --> 00:52:52,130

go ahead the range has approved our new

1201
00:52:58,430 --> 00:52:55,740
t0 of zero nine four nine zero Roger

1202
00:53:01,609 --> 00:52:58,440
that's great news uh range of course has

1203
00:53:04,309 --> 00:53:01,619
to coordinate the launch time and uh of

1204
00:53:07,069 --> 00:53:04,319
course the 30th space Wing here on

1205
00:53:08,930 --> 00:53:07,079
Vandenberg is responsible Roger for the

1206
00:53:12,470 --> 00:53:08,940
public safety of everyone around this

1207
00:53:14,829 --> 00:53:12,480
rocket and they also keep track of uh

1208
00:53:17,870 --> 00:53:14,839
everything that's in the airspace

1209
00:53:21,410 --> 00:53:17,880
downrange of this launch area so it's

1210
00:53:23,270 --> 00:53:21,420
really important and necessary to get

1211
00:53:25,069 --> 00:53:23,280
signed off from the range before you go

1212
00:53:26,329 --> 00:53:25,079
ahead with your new t0 yeah absolutely

1213
00:53:28,430 --> 00:53:26,339

we want to coordinate that with the

1214

00:53:31,370 --> 00:53:28,440

space force as you said personnel safety

1215

00:53:33,170 --> 00:53:31,380

here locally uh Personnel safety in the

1216

00:53:35,750 --> 00:53:33,180

airspace as we get ready to launch this

1217

00:53:39,170 --> 00:53:35,760

rocket and of course Personnel safety on

1218

00:53:42,950 --> 00:53:39,180

the water also as we head downrange uh

1219

00:53:44,630 --> 00:53:42,960

from southerly trajectory leaving the

1220

00:53:48,109 --> 00:53:44,640

East uh the west coast of California

1221

00:53:50,870 --> 00:53:48,119

here so very important to get uh space

1222

00:53:53,210 --> 00:53:50,880

force concurs which is why working as

1223

00:53:55,069 --> 00:53:53,220

teams together is a really good thing

1224

00:53:57,650 --> 00:53:55,079

glad to see that we're getting there

1225

00:53:59,690 --> 00:53:57,660

there as we head down into the count L

1226
00:54:01,849 --> 00:53:59,700
minus 10 minutes

1227
00:54:04,190 --> 00:54:01,859
you heard the L minus 10 minute call 10

1228
00:54:07,069 --> 00:54:04,200
minutes until liftoff

1229
00:54:11,510 --> 00:54:07,079
of JPS 2.

1230
00:54:13,309 --> 00:54:11,520
and lofted on an atlas V rocket

1231
00:54:15,589 --> 00:54:13,319
is the LC on one with the terminal count

1232
00:54:17,329 --> 00:54:15,599
briefing if a condition exceeds a launch

1233
00:54:19,609 --> 00:54:17,339
constraint anytime after the terminal

1234
00:54:21,430 --> 00:54:19,619
count status check the Observer shall

1235
00:54:23,750 --> 00:54:21,440
announce hold hold hold on channel one

1236
00:54:27,349 --> 00:54:23,760
identify their station and briefly State

1237
00:54:33,109 --> 00:54:29,870
FTS verify the hold fire switch is in

1238
00:54:35,510 --> 00:54:33,119

the proceed position ready to proceed

1239

00:54:36,950 --> 00:54:35,520

rlm verify Redline Monitor and event

1240

00:54:38,510 --> 00:54:36,960

table are in the correct configuration

1241

00:54:40,309 --> 00:54:38,520

for terminal Cal

1242

00:54:52,790 --> 00:54:40,319

verify

1243

00:54:56,809 --> 00:54:54,530

so there we heard launch conductor Doug

1244

00:54:59,089 --> 00:54:56,819

Lebo verifying that everything with his

1245

00:55:02,690 --> 00:54:59,099

team is in configuration as he gets

1246

00:55:05,329 --> 00:55:02,700

ready to head into the launch conductors

1247

00:55:07,370 --> 00:55:05,339

terminal count poll at L minus seven and

1248

00:55:10,670 --> 00:55:07,380

explaining to the team that if they see

1249

00:55:12,829 --> 00:55:10,680

anything that is anomalous or out of

1250

00:55:14,809 --> 00:55:12,839

family in the terminal count at T minus

1251
00:55:17,450 --> 00:55:14,819
foreign counting that they are to call a

1252
00:55:21,109 --> 00:55:17,460
hold hold hold hold and stop to count so

1253
00:55:23,089 --> 00:55:21,119
making sure all teams are ready and

1254
00:55:25,130 --> 00:55:23,099
understand their responsibility as we

1255
00:55:27,290 --> 00:55:25,140
get ready to pick up terminal count

1256
00:55:30,770 --> 00:55:27,300
we expect that in just about 90 seconds

1257
00:55:34,430 --> 00:55:30,780
from now as you look on at the atlas 5

1258
00:55:37,370 --> 00:55:34,440
rocket in the 401 configuration the most

1259
00:55:40,730 --> 00:55:37,380
flown configuration that's been the

1260
00:55:43,849 --> 00:55:40,740
Workhorse of the atlas V Fleet uh rocket

1261
00:55:46,490 --> 00:55:43,859
that uh McMuffin knows well it stands at

1262
00:55:48,470 --> 00:55:46,500
191 feet tall

1263
00:55:50,809 --> 00:55:48,480

and weighs 750

1264

00:55:54,470 --> 00:55:50,819

000 pounds at launch

1265

00:55:58,210 --> 00:55:54,480

it'll throw down 860 000 pounds of

1266

00:56:00,650 --> 00:55:58,220

thrust at liftoff

1267

00:56:04,790 --> 00:56:00,660

you said this is the most flown it is

1268

00:56:08,089 --> 00:56:04,800

the 41st uh 401 configuration flown by

1269

00:56:10,910 --> 00:56:08,099

Ula and this is the 97th okay that gives

1270

00:56:12,589 --> 00:56:10,920

you a pretty good idea of how many 401s

1271

00:56:15,109 --> 00:56:12,599

have flown as you said it has been the

1272

00:56:16,670 --> 00:56:15,119

Workhorse for not only NASA but other

1273

00:56:18,770 --> 00:56:16,680

commercial entities also that have

1274

00:56:21,290 --> 00:56:18,780

launched satellites so very proud that

1275

00:56:24,890 --> 00:56:21,300

uoa has this vehicle

1276

00:56:30,049 --> 00:56:24,900

a lot of science missions over the years

1277

00:56:34,490 --> 00:56:32,569

also the first uh Insight sorry the

1278

00:56:36,470 --> 00:56:34,500

first interplanetary launch from right

1279

00:56:38,750 --> 00:56:36,480

here on the West Coast yeah insight and

1280

00:56:41,690 --> 00:56:38,760

one of my favorites launched in 2006 on

1281

00:56:45,650 --> 00:56:41,700

an Is5 uh Pluto New Horizons heading out

1282

00:56:48,470 --> 00:56:45,660

to the uh planet Pluto uh as I still

1283

00:56:50,150 --> 00:56:48,480

believe yeah that's it that's right

1284

00:56:56,510 --> 00:56:50,160

let's stand by

1285

00:57:01,309 --> 00:56:59,329

minus seven minutes

1286

00:57:04,010 --> 00:57:01,319

status check to proceed with terminal

1287

00:57:09,710 --> 00:57:04,020

count Atlas systems propulsion go

1288

00:57:14,650 --> 00:57:09,720

Hydraulics go pneumatics go lo2

1289

00:57:17,990 --> 00:57:14,660

go water go Center systems propulsion go

1290

00:57:23,089 --> 00:57:18,000

pneumatics go lo2

1291

00:57:25,250 --> 00:57:23,099

go lh2 go how's gas go electrical

1292

00:57:31,490 --> 00:57:25,260

systems airborne

1293

00:57:34,549 --> 00:57:31,500

ground go facility go rffts go flight

1294

00:57:39,530 --> 00:57:34,559

control go gcq

1295

00:57:44,870 --> 00:57:39,540

so pop support go calm go

1296

00:57:46,609 --> 00:57:44,880

umbilicals go ECS go Redline monitor go

1297

00:57:49,790 --> 00:57:46,619

quality

1298

00:57:52,609 --> 00:57:49,800

so op safety Manager Go

1299

00:57:57,109 --> 00:57:52,619

Ula safety officer go vehicle system

1300

00:58:00,290 --> 00:57:57,119

engineer go anomaly Chief go range

1301
00:58:02,150 --> 00:58:00,300
coordinator go LDA

1302
00:58:05,030 --> 00:58:02,160
they clear a lot

1303
00:58:07,730 --> 00:58:05,040
nlm NASA's go

1304
00:58:08,630 --> 00:58:07,740
launch director you have permission to

1305
00:58:10,910 --> 00:58:08,640
Launch

1306
00:58:14,809 --> 00:58:10,920
proceeding with the count

1307
00:58:17,510 --> 00:58:14,819
ALC verify t0 is set for zero nine colon

1308
00:58:19,130 --> 00:58:17,520
49 Zulu verified

1309
00:58:21,770 --> 00:58:19,140
that's the poll we wanted to hear and

1310
00:58:24,470 --> 00:58:21,780
the result uh goes across the board we

1311
00:58:26,569 --> 00:58:24,480
are green across the board

1312
00:58:29,089 --> 00:58:26,579
um that's a good good configuration to

1313
00:58:30,890 --> 00:58:29,099

be in and a good poll

1314

00:58:33,650 --> 00:58:30,900

in 30 seconds

1315

00:58:34,790 --> 00:58:33,660

yes NSC verify spacecraft is configured

1316

00:58:37,069 --> 00:58:34,800

for launch

1317

00:58:38,569 --> 00:58:37,079

this is Tennessee spacecraft is

1318

00:58:40,670 --> 00:58:38,579

configured for launch

1319

00:58:43,069 --> 00:58:40,680

so that's another great uh right there

1320

00:58:44,990 --> 00:58:43,079

uh poll to hear from the NSC NASA

1321

00:58:47,329 --> 00:58:45,000

spacecraft are complete prior to the

1322

00:58:49,370 --> 00:58:47,339

terminal count that the spacecraft is

1323

00:58:51,829 --> 00:58:49,380

configured for launch uh getting ready

1324

00:58:53,809 --> 00:58:51,839

to uh proceed into terminal count at T

1325

00:58:56,569 --> 00:58:53,819

minus four when the L clock and the T

1326

00:58:59,930 --> 00:58:56,579

clock sync up so uh very happy to get to

1327

00:59:01,549 --> 00:58:59,940

this point very uh very excited that the

1328

00:59:03,470 --> 00:59:01,559

team was able to work through their

1329

00:59:06,230 --> 00:59:03,480

issues the this morning or this evening

1330

00:59:08,210 --> 00:59:06,240

and into the morning and uh get us to

1331

00:59:10,430 --> 00:59:08,220

this point Daryl this is uh what it's

1332

00:59:13,190 --> 00:59:10,440

all about teamwork and getting a rocket

1333

00:59:15,890 --> 00:59:13,200

launched with the important payload for

1334

00:59:18,289 --> 00:59:15,900

the United States and the world in

1335

00:59:20,569 --> 00:59:18,299

weather Observatory and making sure that

1336

00:59:22,309 --> 00:59:20,579

we're doing it safely and having a

1337

00:59:25,190 --> 00:59:22,319

mission success this morning this

1338

00:59:29,210 --> 00:59:25,200

mission to go into a low earth orbit

1339

00:59:30,890 --> 00:59:29,220

that is Sun synchronous and polar in its

1340

00:59:34,010 --> 00:59:30,900

direction

1341

00:59:39,049 --> 00:59:36,770

and the same orbit as the first jpss

1342

00:59:40,130 --> 00:59:39,059

which is now NOAA 20 and they will be

1343

00:59:41,930 --> 00:59:40,140

circling

1344

00:59:44,030 --> 00:59:41,940

our planet

1345

00:59:46,789 --> 00:59:44,040

Gathering that weather or data that is

1346

00:59:48,410 --> 00:59:46,799

so critical to forecasting severe

1347

00:59:50,030 --> 00:59:48,420

weather

1348

00:59:52,430 --> 00:59:50,040

we're just a few seconds away from

1349

00:59:54,650 --> 00:59:52,440

resuming on my mark the time will be T

1350

00:59:55,730 --> 00:59:54,660

minus four minutes and Counting

1351
00:59:56,809 --> 00:59:55,740
three

1352
01:00:00,289 --> 00:59:56,819
two

1353
01:00:08,990 --> 01:00:02,809
and there we go we are out of the hold

1354
01:00:13,370 --> 01:00:11,270
so from T4 minutes T minus four minutes

1355
01:00:15,890 --> 01:00:13,380
until launch you'll be listening to the

1356
01:00:18,289 --> 01:00:15,900
Ula team perform those final steps in

1357
01:00:20,690 --> 01:00:18,299
the countdown procedure

1358
01:00:22,490 --> 01:00:20,700
yeah as we hear the team they just uh uh

1359
01:00:25,069 --> 01:00:22,500
got the ground pyros ready for the

1360
01:00:27,890 --> 01:00:25,079
liftoff hold down bolts we'll hear them

1361
01:00:29,510 --> 01:00:27,900
bringing up the command sequencers and a

1362
01:00:31,370 --> 01:00:29,520
few other things including that flight

1363
01:00:33,710 --> 01:00:31,380

termination system that we talked about

1364

01:00:36,349 --> 01:00:33,720

replacing that battery earlier

1365

01:00:39,530 --> 01:00:36,359

and we just hear that Hydraulics are at

1366

01:00:44,210 --> 01:00:42,049

should be hearing a call out uh soon

1367

01:00:46,490 --> 01:00:44,220

that Atlas and Centaur are at flight

1368

01:00:48,410 --> 01:00:46,500

pressure is also what we call step three

1369

01:00:51,829 --> 01:00:48,420

pressures which means the vent valves

1370

01:00:54,170 --> 01:00:51,839

are closed uh stopping the venting of

1371

01:00:56,569 --> 01:00:54,180

liquid oxygen and starting to build up

1372

01:01:00,710 --> 01:00:56,579

pressure inside the liquid oxygen tanks

1373

01:01:03,470 --> 01:01:00,720

three minutes getting ready for launch

1374

01:01:06,309 --> 01:01:03,480

also transferring the atlas and Center

1375

01:01:12,589 --> 01:01:10,609

there you hear the flight pressure 50.

1376
01:01:14,329 --> 01:01:12,599
now looking to transfer that power yes

1377
01:01:19,430 --> 01:01:14,339
internal

1378
01:01:25,069 --> 01:01:22,549
coming up in just about

1379
01:01:26,990 --> 01:01:25,079
30 seconds the team will command the

1380
01:01:29,089 --> 01:01:27,000
launch sequencer to start

1381
01:01:30,170 --> 01:01:29,099
I'll be followed shortly by securing the

1382
01:01:33,109 --> 01:01:30,180
centaur

1383
01:01:36,049 --> 01:01:33,119
liquid hydrogen and liquid oxygen

1384
01:01:38,270 --> 01:01:36,059
topping activity

1385
01:01:39,530 --> 01:01:38,280
then just a few seconds after that the

1386
01:01:44,390 --> 01:01:39,540
team will command the flight control

1387
01:01:49,130 --> 01:01:44,400
system to launch enable and arm

1388
01:01:49,140 --> 01:01:55,789

swapped out a battery

1389

01:01:58,910 --> 01:01:57,349

folks here at the hangar getting ready

1390

01:02:00,530 --> 01:01:58,920

to go outside

1391

01:02:04,730 --> 01:02:00,540

159

1392

01:02:07,069 --> 01:02:04,740

T minus two minutes until liftoff 155

1393

01:02:08,870 --> 01:02:07,079

launch sequence are starting

1394

01:02:12,170 --> 01:02:08,880

there we heard the launcher you talked

1395

01:02:15,849 --> 01:02:12,180

about securing centaur lh2 securing

1396

01:02:19,849 --> 01:02:18,109

Centaur locks and hydrogen have been

1397

01:02:23,690 --> 01:02:19,859

secured 140.

1398

01:02:28,370 --> 01:02:23,700

allowing them to build up pressure 137.

1399

01:02:31,370 --> 01:02:29,510

there's the army of the flight

1400

01:02:37,970 --> 01:02:31,380

termination system

1401

01:02:41,210 --> 01:02:39,470

120.

1402

01:02:42,829 --> 01:02:41,220

excitement building here at the

1403

01:02:46,490 --> 01:02:42,839

Vandenberg space force base in

1404

01:02:50,450 --> 01:02:48,470

we see here shortly that the Centaur

1405

01:02:51,650 --> 01:02:50,460

vehicle is that flight verification Bell

1406

01:02:55,130 --> 01:02:51,660

block

1407

01:03:00,770 --> 01:02:57,829

pressures on their way to flight levels

1408

01:03:03,010 --> 01:03:00,780

Rock report range status Rock range is

1409

01:03:06,890 --> 01:03:03,020

green

1410

01:03:08,809 --> 01:03:06,900

to move forward

1411

01:03:11,510 --> 01:03:08,819

if you're just joining us we are just

1412

01:03:13,970 --> 01:03:11,520

seconds away 50 to be exact

1413

01:03:15,589 --> 01:03:13,980

from launching jpss2 a new weather

1414

01:03:17,750 --> 01:03:15,599

Observatory that will track storms

1415

01:03:19,910 --> 01:03:17,760

across the globe as it orbits the planet

1416

01:03:21,950 --> 01:03:19,920

40 seconds

1417

01:03:24,049 --> 01:03:21,960

stable at step three

1418

01:03:25,730 --> 01:03:24,059

it will also launch Lofton a technology

1419

01:03:27,530 --> 01:03:25,740

demonstrator developing new way to

1420

01:03:32,990 --> 01:03:27,540

safely bring large payloads through the

1421

01:03:40,309 --> 01:03:36,470

25 seconds status check go Atlas go

1422

01:03:42,260 --> 01:03:40,319

Centaur go jpss2 there we go Daryl ready

1423

01:03:45,349 --> 01:03:42,270

for launch this morning

1424

01:03:47,569 --> 01:03:45,359

[Music]

1425

01:03:49,250 --> 01:03:47,579

on a clear night in California here we

1426

01:03:55,190 --> 01:03:49,260

go

1427

01:04:02,390 --> 01:03:55,200

T-minus ten nine eight seven six five

1428

01:04:08,089 --> 01:04:04,490

and lift up

1429

01:04:10,970 --> 01:04:08,099

liftoff of the atlas five carrying jpss2

1430

01:04:13,549 --> 01:04:10,980

and Lofton a new weather Observatory for

1431

01:04:18,490 --> 01:04:13,559

our planet and a test for Planetary

1432

01:04:23,329 --> 01:04:21,710

Omar bias say lsp-100 on its way also

1433

01:04:25,309 --> 01:04:23,339

we're very happy for this 100th Mission

1434

01:04:27,530 --> 01:04:25,319

the launch Services Program let's listen

1435

01:04:29,289 --> 01:04:27,540

in as Jesse Gonzalez coming up on 30

1436

01:04:32,690 --> 01:04:29,299

seconds

1437

01:04:43,970 --> 01:04:32,700

two miles downrange

1438

01:04:47,270 --> 01:04:45,950

and passing 45 seconds for the flight

1439

01:04:55,930 --> 01:04:47,280

continuing to see good operating

1440

01:05:06,829 --> 01:04:59,270

is ending its role maneuver and vehicle

1441

01:05:16,970 --> 01:05:08,150

thank you

1442

01:05:21,470 --> 01:05:19,010

and passing through 80 Seconds into

1443

01:05:23,210 --> 01:05:21,480

flight The Mach 1 Atlas 5 is now

1444

01:05:25,490 --> 01:05:23,220

supersonic

1445

01:05:28,849 --> 01:05:25,500

that's 700 Vehicles now passing through

1446

01:05:31,210 --> 01:05:28,859

Max Q maximum Dynamic pressure 769 miles

1447

01:05:37,309 --> 01:05:31,220

per hour 120

1448

01:05:41,510 --> 01:05:39,530

going through the area of Maximum

1449

01:05:42,890 --> 01:05:41,520

Dynamic pressure on the vehicle passing

1450

01:05:45,349 --> 01:05:42,900

100 seconds into flight saying the

1451

01:05:47,270 --> 01:05:45,359

rd-180 throttle back as expected

1452

01:05:48,829 --> 01:05:47,280

engine response continues to look good

1453

01:05:50,390 --> 01:05:48,839

and vehicle body rates continue to look

1454

01:05:53,750 --> 01:05:50,400

good at this time

1455

01:05:55,849 --> 01:05:53,760

throttling down just a little bit

1456

01:05:57,890 --> 01:05:55,859

to reduce stress two minutes into flight

1457

01:06:00,109 --> 01:05:57,900

the vehicle is now 12 miles in altitude

1458

01:06:19,190 --> 01:06:00,119

uh seven miles downrange traveling at

1459

01:06:23,289 --> 01:06:21,770

and passing 140 seconds into flight the

1460

01:06:25,490 --> 01:06:23,299

vehicle has gone to closed loop control

1461

01:06:27,650 --> 01:06:25,500

continuing to see stable body rates

1462

01:06:29,450 --> 01:06:27,660

throughout the Boost phase

1463

01:06:31,430 --> 01:06:29,460

so the rocket was flying in a trajectory

1464

01:06:33,410 --> 01:06:31,440

that's programmed in but now closed loop

1465

01:06:35,569 --> 01:06:33,420

is taking positional feedback from the

1466

01:06:37,370 --> 01:06:35,579

rocket sensors to get it into the proper

1467

01:06:38,809 --> 01:06:37,380

line for trajectory

1468

01:06:41,630 --> 01:06:38,819

it's going to maintain that Ascent line

1469

01:06:45,529 --> 01:06:41,640

beautiful shot there on board RCS is now

1470

01:06:45,539 --> 01:06:50,809

a shot from our infrared camera

1471

01:06:54,950 --> 01:06:52,609

and the reaction control system has

1472

01:06:58,069 --> 01:06:54,960

reached flight levels

1473

01:07:00,109 --> 01:06:58,079

system response looks good vehicle body

1474

01:07:01,670 --> 01:07:00,119

rates continue to look good as well I'm

1475

01:07:08,630 --> 01:07:01,680

seeing good response out of the rd-180

1476

01:07:13,069 --> 01:07:10,490

got to start cooling down that Centaur

1477

01:07:15,109 --> 01:07:13,079

engine in the second stage prepare for

1478

01:07:16,910 --> 01:07:15,119

its super chill propellant to flow

1479

01:07:18,770 --> 01:07:16,920

through the booster about three minutes

1480

01:07:21,710 --> 01:07:18,780

and 15 seconds into flight vehicle is

1481

01:07:24,230 --> 01:07:21,720

now 53 miles in altitude uh 67 miles

1482

01:07:43,430 --> 01:07:24,240

downrange traveling at 5 800 miles per

1483

01:07:47,170 --> 01:07:45,589

and now seeing the rd-180 throttle back

1484

01:07:50,270 --> 01:07:47,180

to maintain a

1485

01:07:54,710 --> 01:07:50,280

5.0 G acceleration limit

1486

01:07:59,150 --> 01:07:56,930

we're just seconds away now from booster

1487

01:08:01,069 --> 01:07:59,160

engine cutoff and we did see a good

1488

01:08:05,029 --> 01:08:01,079

response on the Centaur systems as a

1489

01:08:05,039 --> 01:08:10,430

and we have Biko booster engine cutoff

1490

01:08:10,440 --> 01:08:15,410

and we have successful stage separation

1491

01:08:15,420 --> 01:08:22,789

with Stage Separation on the rl10

1492

01:08:28,490 --> 01:08:25,669

and we have ignition for the first burn

1493

01:08:30,289 --> 01:08:28,500

RL 10 start parameters look good

1494

01:08:34,849 --> 01:08:30,299

and we have good indication of payload

1495

01:08:38,749 --> 01:08:37,249

saw a shot of that booster floating off

1496

01:08:40,189 --> 01:08:38,759

into space there you can actually see

1497

01:08:42,410 --> 01:08:40,199

the four meter fairing going by there

1498

01:08:44,150 --> 01:08:42,420

too on the video that's a great thing

1499

01:08:46,130 --> 01:08:44,160

looking at the Telemetry data rd180

1500

01:08:48,530 --> 01:08:46,140

performed very well on the first stage

1501

01:08:50,930 --> 01:08:48,540

separation was clean payload fairings

1502

01:08:53,390 --> 01:08:50,940

you can see on the infrared video there

1503

01:08:55,550 --> 01:08:53,400

on the screen the booster falling away

1504

01:08:57,769 --> 01:08:55,560

and the ferent two little fairings uh

1505

01:08:59,689 --> 01:08:57,779

start pre-start coming up on five

1506

01:09:01,430 --> 01:08:59,699

minutes into flight this first burn will

1507

01:09:03,610 --> 01:09:01,440

be about 13 minutes in duration the

1508

01:09:06,709 --> 01:09:03,620

first of three Burns for today's Mission

1509

01:09:09,829 --> 01:09:06,719

continuing to see stable rl-10 chamber

1510

01:09:12,769 --> 01:09:09,839

pressures at the beginning of the burn

1511

01:09:16,669 --> 01:09:12,779

sand also seeing a stable body rates

1512

01:09:19,070 --> 01:09:16,679

following uh payload fairing jettison

1513

01:09:21,829 --> 01:09:19,080

Carlton's performing very well pre-start

1514

01:09:24,050 --> 01:09:21,839

was good ignition came out very well as

1515

01:09:26,749 --> 01:09:24,060

we saw in the video and as the Centaur

1516

01:09:28,729 --> 01:09:26,759

continues to burn normally uh body rates

1517

01:09:32,090 --> 01:09:28,739

on the vehicle look very good with

1518

01:09:35,150 --> 01:09:32,100

payload fairing gone JPS is too exposed

1519

01:09:37,130 --> 01:09:35,160

to the environments of space

1520

01:09:38,570 --> 01:09:37,140

warm to the motor Catalyst vet for

1521

01:09:41,150 --> 01:09:38,580

operation

1522

01:09:43,689 --> 01:09:41,160

explain quickly what a body rate is so

1523

01:09:47,510 --> 01:09:43,699

the body rates the attitude of Centaur

1524

01:09:49,610 --> 01:09:47,520

as the vehicle is moving through space

1525

01:09:52,130 --> 01:09:49,620

we're trying to keep everything as

1526

01:09:54,770 --> 01:09:52,140

stable as possible so we have an XY and

1527

01:09:56,350 --> 01:09:54,780

a z body rate on the Centaur in the

1528

01:10:00,229 --> 01:09:56,360

flight computer and the RCs system

1529

01:10:03,229 --> 01:10:00,239

continue to maintain that as we move

1530

01:10:06,410 --> 01:10:03,239

through to get ready for separation

1531

01:10:09,169 --> 01:10:06,420

and now we're moving to ula's real-time

1532

01:10:12,410 --> 01:10:09,179

animation flight the vehicle is now 250

1533

01:10:17,930 --> 01:10:12,420

miles in altitude 430 miles downrange

1534

01:10:24,890 --> 01:10:19,850

The Innovation is informed by real-time

1535

01:10:30,649 --> 01:10:27,050

as we watch the rl-10 burn and the

1536

01:10:40,729 --> 01:10:34,010

at the top of the vehicle is

1537

01:10:46,130 --> 01:10:43,370

and there you're looking at the RL rl10

1538

01:10:47,810 --> 01:10:46,140

as it continues its burn and coming up

1539

01:10:49,310 --> 01:10:47,820

on seven minutes into flight uh

1540

01:10:51,770 --> 01:10:49,320

continuing to see stable performance

1541

01:10:54,950 --> 01:10:51,780

across all Centaur systems stable tank

1542

01:10:58,729 --> 01:10:54,960

pressures good performance at a pu and

1543

01:11:01,310 --> 01:10:58,739

some minor roll adjustments as a centaur

1544

01:11:03,110 --> 01:11:01,320

optimizes the Telemetry link

1545

01:11:04,370 --> 01:11:03,120

Centaur with plenty of performance to

1546

01:11:05,990 --> 01:11:04,380

get there plenty of performance and

1547

01:11:08,750 --> 01:11:06,000

everything's looking great as we heard

1548

01:11:10,610 --> 01:11:08,760

uh Jesse say everything is performing

1549

01:11:12,290 --> 01:11:10,620

not only as we get ready to continue

1550

01:11:13,970 --> 01:11:12,300

this burn for separation we're going to

1551
01:11:15,590 --> 01:11:13,980
keep watching the data and listening to

1552
01:11:18,470 --> 01:11:15,600
the launch team as we track the

1553
01:11:20,090 --> 01:11:18,480
performance of the Centaur getting jpss2

1554
01:11:23,689 --> 01:11:20,100
into orbit but in the meantime let's

1555
01:11:27,229 --> 01:11:25,550
if you're just joining us I'm NASA's

1556
01:11:29,209 --> 01:11:27,239
Megan Cruz bringing you live launch

1557
01:11:30,830 --> 01:11:29,219
coverage from Vandenberg space Force

1558
01:11:33,649 --> 01:11:30,840
Base along the Central Coast of

1559
01:11:37,010 --> 01:11:33,659
California just about 7 Minutes 34

1560
01:11:39,410 --> 01:11:37,020
seconds ago we watched as a United Atlas

1561
01:11:42,830 --> 01:11:39,420
United launch Alliance Atlas V rocket

1562
01:11:44,990 --> 01:11:42,840
lifted off at 1 49 a.m Pacific time and

1563
01:11:47,750 --> 01:11:45,000

it was a spectacular site what a clear

1564

01:11:50,090 --> 01:11:47,760

night no clouds in sight that rocket

1565

01:11:51,830 --> 01:11:50,100

just lit up the dark sky it's flying two

1566

01:11:54,890 --> 01:11:51,840

important missions today the primary one

1567

01:11:56,810 --> 01:11:54,900

is to send jpss2 into orbit it's the

1568

01:11:59,510 --> 01:11:56,820

National Oceanic and Atmospheric

1569

01:12:01,850 --> 01:11:59,520

administration's newest joint polar

1570

01:12:03,890 --> 01:12:01,860

weather satellite the secondary mission

1571

01:12:06,169 --> 01:12:03,900

is called lofted which will demonstrate

1572

01:12:08,750 --> 01:12:06,179

a new type of heat shield that inflates

1573

01:12:10,370 --> 01:12:08,760

for atmospheric re-entry we're going to

1574

01:12:14,630 --> 01:12:10,380

stay with you live for every important

1575

01:12:18,649 --> 01:12:16,970

NASA's primary launch site is Kennedy

1576

01:12:20,870 --> 01:12:18,659

Space Center in Florida but we lifted

1577

01:12:23,570 --> 01:12:20,880

off from California this morning because

1578

01:12:25,610 --> 01:12:23,580

of the Rockets flight path by launching

1579

01:12:27,490 --> 01:12:25,620

on the west coast teams kept the rocket

1580

01:12:30,169 --> 01:12:27,500

from flying over land

1581

01:12:32,390 --> 01:12:30,179

jpss2 is a polar orbiting satellite

1582

01:12:35,270 --> 01:12:32,400

which will circle the Earth pole to pole

1583

01:12:38,030 --> 01:12:35,280

14 times a day as the Earth rotates

1584

01:12:40,850 --> 01:12:38,040

underneath it it will pass over every

1585

01:12:43,370 --> 01:12:40,860

single spot on our planet at least twice

1586

01:12:44,870 --> 01:12:43,380

a day collecting valuable weather and

1587

01:12:48,169 --> 01:12:44,880

climate data

1588

01:12:50,510 --> 01:12:48,179

once operational jpss2 will be renamed

1589

01:12:52,490 --> 01:12:50,520

NOAA 21 and when you open the Weather

1590

01:12:55,610 --> 01:12:52,500

app on your smartphone you'll be using

1591

01:12:57,350 --> 01:12:55,620

NOAA 21 data NASA's Jasmine Hopkins

1592

01:12:59,810 --> 01:12:57,360

joins us with how the National Weather

1593

01:13:03,649 --> 01:12:59,820

Service uses the satellites to keep you

1594

01:13:07,610 --> 01:13:05,689

joining us now is Jim yo from the

1595

01:13:09,410 --> 01:13:07,620

National Weather Service thanks so much

1596

01:13:11,750 --> 01:13:09,420

for being here Jim a pleasure to be here

1597

01:13:13,970 --> 01:13:11,760

to talk about jpss2 and how the weather

1598

01:13:15,890 --> 01:13:13,980

service is going to use data from it to

1599

01:13:17,689 --> 01:13:15,900

get the best possible forecast for the

1600

01:13:19,310 --> 01:13:17,699

nation absolutely and speaking of that

1601
01:13:20,990 --> 01:13:19,320
forecast most of us check the weather

1602
01:13:23,209 --> 01:13:21,000
before we even leave the house in the

1603
01:13:26,209 --> 01:13:23,219
morning so what are the applications of

1604
01:13:29,630 --> 01:13:26,219
jpss2 data well the Weather Service will

1605
01:13:32,450 --> 01:13:29,640
use jpss2 data as the basis for making

1606
01:13:35,750 --> 01:13:32,460
numerical weather prediction models run

1607
01:13:37,189 --> 01:13:35,760
for forecast of three to seven days but

1608
01:13:42,169 --> 01:13:37,199
we'll also use those data for making

1609
01:13:44,510 --> 01:13:42,179
seasonal to season forecast and to

1610
01:13:46,310 --> 01:13:44,520
monitor long-term trends for climate

1611
01:13:47,689 --> 01:13:46,320
science right and that's great to see

1612
01:13:49,669 --> 01:13:47,699
that it can help us from day to day and

1613
01:13:51,410 --> 01:13:49,679

also long term as well right it's very

1614

01:13:53,209 --> 01:13:51,420

versatile absolutely and speaking of

1615

01:13:55,370 --> 01:13:53,219

versatile I know that NOAA has provided

1616

01:13:58,550 --> 01:13:55,380

a huge Suite of different satellites

1617

01:13:59,810 --> 01:13:58,560

from jpss to goes as well how does the

1618

01:14:02,149 --> 01:13:59,820

National Weather Service use them all

1619

01:14:04,010 --> 01:14:02,159

together we use data from the different

1620

01:14:08,030 --> 01:14:04,020

satellite systems in the weather service

1621

01:14:10,310 --> 01:14:08,040

in complementary fashion so jpss 2 by

1622

01:14:13,130 --> 01:14:10,320

being a polar satellite will collect

1623

01:14:14,750 --> 01:14:13,140

data around the world every spot twice a

1624

01:14:16,430 --> 01:14:14,760

day and that's really important for

1625

01:14:18,649 --> 01:14:16,440

making a longer term forecast because

1626

01:14:20,930 --> 01:14:18,659

today's weather here typically starts

1627

01:14:22,970 --> 01:14:20,940

somewhere else several days earlier now

1628

01:14:24,890 --> 01:14:22,980

hurricane started off the coast of

1629

01:14:26,390 --> 01:14:24,900

Africa moved to the East Coast or we

1630

01:14:28,790 --> 01:14:26,400

look in the west coast here in

1631

01:14:30,709 --> 01:14:28,800

California and you might see up the

1632

01:14:33,290 --> 01:14:30,719

so-called Pineapple Express storm that

1633

01:14:36,350 --> 01:14:33,300

comes you know with uh strong rains from

1634

01:14:38,750 --> 01:14:36,360

the Pacific that are precipitated uh in

1635

01:14:41,630 --> 01:14:38,760

in California and other places on the

1636

01:14:44,030 --> 01:14:41,640

coast so we use those to get that

1637

01:14:45,830 --> 01:14:44,040

long-term forecast but then we use goes

1638

01:14:48,050 --> 01:14:45,840

which are like Sentinels on each Coast

1639

01:14:50,149 --> 01:14:48,060

to provide that fine scale up-to-date

1640

01:14:51,470 --> 01:14:50,159

adjustment in our forecast right that's

1641

01:14:52,970 --> 01:14:51,480

great to see how they work together and

1642

01:14:55,610 --> 01:14:52,980

understand that it's not just local it

1643

01:14:57,410 --> 01:14:55,620

is global weather systems which is huge

1644

01:14:59,870 --> 01:14:57,420

So speaking of that I know that we're

1645

01:15:01,370 --> 01:14:59,880

all very eager to get the jpss2 data in

1646

01:15:03,410 --> 01:15:01,380

our hands how soon will it be available

1647

01:15:05,390 --> 01:15:03,420

to the end user well the end users will

1648

01:15:07,970 --> 01:15:05,400

start to see it in forecast in a matter

1649

01:15:09,830 --> 01:15:07,980

of months typically what happens is the

1650

01:15:11,570 --> 01:15:09,840

instruments on on the JP on a new

1651
01:15:13,610 --> 01:15:11,580
satellite will be turned on one by one

1652
01:15:15,110 --> 01:15:13,620
and then they'll be checked out to make

1653
01:15:16,790 --> 01:15:15,120
sure that the instruments are performing

1654
01:15:18,229 --> 01:15:16,800
as expected that the data what we think

1655
01:15:20,689 --> 01:15:18,239
they are we'll compare them to the JPS

1656
01:15:22,070 --> 01:15:20,699
S1 data for example and then they'll go

1657
01:15:24,110 --> 01:15:22,080
into the numerical weather prediction

1658
01:15:27,290 --> 01:15:24,120
models and so we'll have a seamless

1659
01:15:28,669 --> 01:15:27,300
transition from one jpss satellite to

1660
01:15:30,110 --> 01:15:28,679
the next one right well we're looking

1661
01:15:32,270 --> 01:15:30,120
forward

1662
01:15:33,590 --> 01:15:32,280
that's very exciting Jim yo thank you so

1663
01:15:36,470 --> 01:15:33,600

much for joining us my pleasure to be

1664

01:15:38,630 --> 01:15:36,480

with you today absolutely back to you

1665

01:15:40,550 --> 01:15:38,640

today's launch marked the second this

1666

01:15:42,890 --> 01:15:40,560

year made possible because of the NASA

1667

01:15:45,530 --> 01:15:42,900

NOAA partnership Jim and Jasmine

1668

01:15:47,270 --> 01:15:45,540

actually just mentioned it goes T lifted

1669

01:15:50,930 --> 01:15:47,280

off from the Kennedy Space Center back

1670

01:15:53,390 --> 01:15:50,940

in March now renamed goes 18 it keeps

1671

01:15:56,750 --> 01:15:53,400

continuous watch over the Western U.S

1672

01:16:00,530 --> 01:15:56,760

Mexico Central America and the Pacific

1673

01:16:02,330 --> 01:16:00,540

Ocean as a geostationary satellite that

1674

01:16:04,790 --> 01:16:02,340

means it rotates with the Earth

1675

01:16:08,330 --> 01:16:04,800

remaining in a fixed position in the sky

1676

01:16:10,970 --> 01:16:08,340

unlike jpss2 which again will fly pole

1677

01:16:13,490 --> 01:16:10,980

to pole having constellations of both

1678

01:16:15,229 --> 01:16:13,500

kinds of satellites gives Noah a

1679

01:16:17,470 --> 01:16:15,239

complete picture of our Earth's weather

1680

01:16:20,030 --> 01:16:17,480

and climate

1681

01:16:22,250 --> 01:16:20,040

jpss2 is the third in the latest series

1682

01:16:24,950 --> 01:16:22,260

of advanced polar orbiting satellites

1683

01:16:26,930 --> 01:16:24,960

and boy they travel fast it only takes

1684

01:16:29,030 --> 01:16:26,940

90 minutes for them to go from the North

1685

01:16:31,189 --> 01:16:29,040

Pole to the South Pole and back up to

1686

01:16:33,770 --> 01:16:31,199

the North Pole again and every time a

1687

01:16:36,410 --> 01:16:33,780

satellite flies over a pole it transmits

1688

01:16:37,790 --> 01:16:36,420

data to two primary ground stations so

1689

01:16:40,669 --> 01:16:37,800

you don't have to wait long for a

1690

01:16:43,430 --> 01:16:40,679

weather forecast one station is near the

1691

01:16:45,530 --> 01:16:43,440

North Pole on Norway's remote small barg

1692

01:16:48,290 --> 01:16:45,540

Islands you see right there the other is

1693

01:16:49,970 --> 01:16:48,300

at a station in Antarctica antennas at

1694

01:16:51,729 --> 01:16:49,980

each ground station collect data from

1695

01:16:54,350 --> 01:16:51,739

the satellites as they pass over

1696

01:16:56,750 --> 01:16:54,360

receivers capture the data which is then

1697

01:17:00,729 --> 01:16:56,760

fed into computer models and then to you

1698

01:17:04,729 --> 01:17:03,169

jpss2 will do more than warn you of

1699

01:17:06,770 --> 01:17:04,739

severe weather and help you to plan what

1700

01:17:09,410 --> 01:17:06,780

you wear each day NASA's Jasmine Hopkins

1701
01:17:11,750 --> 01:17:09,420
is back again to show us how the data it

1702
01:17:14,990 --> 01:17:11,760
collects can also be used to forecast

1703
01:17:18,950 --> 01:17:15,000
crop yields and how much you pay at the

1704
01:17:23,330 --> 01:17:21,410
joining us now is Irene Parker Deputy

1705
01:17:26,030 --> 01:17:23,340
assistant administrator systems for

1706
01:17:28,250 --> 01:17:26,040
nezdaz now Irene what does Mazda stand

1707
01:17:30,169 --> 01:17:28,260
for ernestes is noaa's National

1708
01:17:32,990 --> 01:17:30,179
Environmental satellite information

1709
01:17:35,090 --> 01:17:33,000
service and basically what it does is

1710
01:17:37,130 --> 01:17:35,100
providing satellite and observational

1711
01:17:39,770 --> 01:17:37,140
data for the nation specifically for

1712
01:17:42,590 --> 01:17:39,780
weather and climate wow okay a big title

1713
01:17:44,870 --> 01:17:42,600

you've got a pretty big job then so tell

1714

01:17:46,310 --> 01:17:44,880

me we understand that jpss and other

1715

01:17:48,470 --> 01:17:46,320

satellites like that can help predict

1716

01:17:50,930 --> 01:17:48,480

the weather but they can also help us

1717

01:17:53,149 --> 01:17:50,940

understand Rising prices at the grocery

1718

01:17:55,010 --> 01:17:53,159

store how does that work oh yeah it

1719

01:17:56,570 --> 01:17:55,020

people don't realize how much this

1720

01:17:58,729 --> 01:17:56,580

information from this satellite actually

1721

01:18:00,110 --> 01:17:58,739

affects their day-to-day lives so for

1722

01:18:02,330 --> 01:18:00,120

folks like you and I going to the

1723

01:18:04,310 --> 01:18:02,340

grocery store and you see those costs of

1724

01:18:06,649 --> 01:18:04,320

that apple or that banana that

1725

01:18:09,169 --> 01:18:06,659

information is really coming from and

1726

01:18:11,990 --> 01:18:09,179

being supported by our jpss2 satellite

1727

01:18:14,030 --> 01:18:12,000

systems so the data that the jpss2

1728

01:18:16,130 --> 01:18:14,040

instruments collect they're allowing

1729

01:18:18,709 --> 01:18:16,140

scientists to predict droughts and it

1730

01:18:20,810 --> 01:18:18,719

also tracks the greenness of crops and

1731

01:18:23,030 --> 01:18:20,820

that information goes into a product

1732

01:18:25,850 --> 01:18:23,040

called the vegetation Health index and

1733

01:18:27,709 --> 01:18:25,860

that helps people determine how much

1734

01:18:29,990 --> 01:18:27,719

food supply the Harvest is going to

1735

01:18:31,790 --> 01:18:30,000

actually produce that year and based off

1736

01:18:35,270 --> 01:18:31,800

of that that determines what that price

1737

01:18:36,830 --> 01:18:35,280

of that Apple that lettuce Etc is

1738

01:18:38,750 --> 01:18:36,840

actually costing us at the grocery store

1739

01:18:40,850 --> 01:18:38,760

wow so it's really helping us in that

1740

01:18:42,290 --> 01:18:40,860

day-to-day life it is they're also

1741

01:18:44,689 --> 01:18:42,300

helping us better understand our

1742

01:18:45,950 --> 01:18:44,699

changing climate how is that working so

1743

01:18:48,169 --> 01:18:45,960

the way it's helping us what they're

1744

01:18:50,870 --> 01:18:48,179

changing of our climate is that it is

1745

01:18:53,390 --> 01:18:50,880

providing us continuous data records for

1746

01:18:56,149 --> 01:18:53,400

the past 40 years so NOAA has been

1747

01:18:58,910 --> 01:18:56,159

basically operating polar satellite

1748

01:19:01,130 --> 01:18:58,920

since the 1980s so what's really key is

1749

01:19:03,229 --> 01:19:01,140

that we continue these observations and

1750

01:19:05,870 --> 01:19:03,239

the jpss2 satellite is going to continue

1751

01:19:08,209 --> 01:19:05,880

these key observations to be able to

1752

01:19:10,550 --> 01:19:08,219

monitor the climate change so basically

1753

01:19:13,390 --> 01:19:10,560

it's tracking data such as changes in

1754

01:19:16,669 --> 01:19:13,400

our temperature sea ice

1755

01:19:18,649 --> 01:19:16,679

clouds it's cracking ocean color

1756

01:19:20,930 --> 01:19:18,659

information and all that information is

1757

01:19:23,930 --> 01:19:20,940

being used by scientists to determine

1758

01:19:25,430 --> 01:19:23,940

how the climate is evolving and what it

1759

01:19:27,950 --> 01:19:25,440

really is also doing is it's actually

1760

01:19:30,050 --> 01:19:27,960

even taking information above the Arctic

1761

01:19:32,209 --> 01:19:30,060

and it's able to see how the Arctic is

1762

01:19:34,189 --> 01:19:32,219

changing so you can measure how the

1763

01:19:36,590 --> 01:19:34,199

change in the sea ice has been happening

1764

01:19:38,930 --> 01:19:36,600

over the years and that really helps the

1765

01:19:40,390 --> 01:19:38,940

scientists and the community to see how

1766

01:19:42,410 --> 01:19:40,400

climate is changing around the world

1767

01:19:43,850 --> 01:19:42,420

Irene that is awesome a lot of great

1768

01:19:45,410 --> 01:19:43,860

data that we're getting from these thank

1769

01:19:46,490 --> 01:19:45,420

you so much for joining us today no

1770

01:19:49,430 --> 01:19:46,500

problem thank you for having me

1771

01:19:51,590 --> 01:19:49,440

absolutely back to you

1772

01:19:53,990 --> 01:19:51,600

we're now just moments away from Main

1773

01:19:55,430 --> 01:19:54,000

engine cutoff let's go back out to Daryl

1774

01:19:56,810 --> 01:19:55,440

they've been monitoring the launch Team

1775

01:19:58,610 --> 01:19:56,820

for us

1776

01:19:59,810 --> 01:19:58,620

that's right Megan uh thank you back

1777

01:20:01,729 --> 01:19:59,820

here at the mission director Center

1778

01:20:03,290 --> 01:20:01,739

joined by Mick woltman engineer with

1779

01:20:05,510 --> 01:20:03,300

launch Services Program I'm Daryl nail

1780

01:20:08,930 --> 01:20:05,520

as you mentioned and we are tracking the

1781

01:20:10,910 --> 01:20:08,940

JT jpss2 a little over a minute

1782

01:20:12,229 --> 01:20:10,920

remaining in the burn uh continuing to

1783

01:20:15,050 --> 01:20:12,239

see very good performance out of the

1784

01:20:16,310 --> 01:20:15,060

rl-10 that's a good sign rl-10 Bernie

1785

01:20:18,890 --> 01:20:16,320

Wellington continuing to see very stable

1786

01:20:21,110 --> 01:20:18,900

Centaur body rates yep very stable

1787

01:20:23,930 --> 01:20:21,120

flight for centaur through this whole

1788

01:20:26,209 --> 01:20:23,940

burn uh it's about 12 minutes 51 seconds

1789

01:20:27,950 --> 01:20:26,219

roughly somewhere in there as we get

1790

01:20:30,830 --> 01:20:27,960

ready to come up on Main engine cut off

1791

01:20:33,770 --> 01:20:30,840

one for this uh first burn as we get

1792

01:20:36,169 --> 01:20:33,780

ready for uh jpss2 separation Daryl so

1793

01:20:39,350 --> 01:20:36,179

we've been watching the Telemetry live

1794

01:20:42,410 --> 01:20:39,360

here on the animation from Ula through

1795

01:20:44,270 --> 01:20:42,420

their SDK things look really well

1796

01:20:46,669 --> 01:20:44,280

yeah the burn expected to last right

1797

01:20:50,030 --> 01:20:46,679

around 13 minutes

1798

01:20:51,470 --> 01:20:50,040

putting jpss2 the joint polar satellite

1799

01:20:55,130 --> 01:20:51,480

system too

1800

01:20:57,229 --> 01:20:55,140

into its proper polar Sun synchronous

1801

01:20:59,570 --> 01:20:57,239

orbit

1802

01:21:02,510 --> 01:20:59,580

you're looking at animation reflecting

1803

01:21:05,990 --> 01:21:02,520

real-time Telemetry just now T minus 20

1804

01:21:13,370 --> 01:21:06,000

seconds until that burn is finished

1805

01:21:13,380 --> 01:21:18,110

it also had Miko one main engine cut off

1806

01:21:20,689 --> 01:21:19,610

you can see that reflected in the

1807

01:21:22,250 --> 01:21:20,699

animation

1808

01:21:24,050 --> 01:21:22,260

we saw a little bit of movement by the

1809

01:21:27,169 --> 01:21:24,060

reaction control system which is also

1810

01:21:29,689 --> 01:21:27,179

reflected here and now seeing the RCs

1811

01:21:31,729 --> 01:21:29,699

system fire at 100 settling

1812

01:21:33,370 --> 01:21:31,739

yeah so what the Centaur is doing now is

1813

01:21:36,169 --> 01:21:33,380

trying to settle down

1814

01:21:37,790 --> 01:21:36,179

propellants inside the tank yep as we

1815

01:21:41,570 --> 01:21:37,800

get ready to finish up this burn and get

1816

01:21:44,149 --> 01:21:41,580

ready for uh J2 separation about 11

1817

01:21:46,149 --> 01:21:44,159

minutes from now uh as uh everything

1818

01:21:48,290 --> 01:21:46,159

gets uh ready to go and they start

1819

01:21:50,270 --> 01:21:48,300

powering up all the systems on the

1820

01:21:52,490 --> 01:21:50,280

spacecraft making sure it's all ready to

1821

01:21:54,830 --> 01:21:52,500

go prior to initiating a separation

1822

01:21:57,709 --> 01:21:54,840

Coast for a little over 10 minutes prior

1823

01:21:59,750 --> 01:21:57,719

to JPS F2 separation all right so that

1824

01:22:02,810 --> 01:21:59,760

direct inject uh just a few minutes away

1825

01:22:05,030 --> 01:22:02,820

we're going to monitor the progress and

1826

01:22:06,890 --> 01:22:05,040

continue to do so in the meantime let's

1827

01:22:09,770 --> 01:22:06,900

send it back to me

1828

01:22:11,930 --> 01:22:09,780

after jpss2 coverage is complete we will

1829

01:22:13,669 --> 01:22:11,940

shift our Focus to lofted the low earth

1830

01:22:15,890 --> 01:22:13,679

orbit flight test of an inflatable

1831

01:22:17,810 --> 01:22:15,900

decelerator basically a new heat shield

1832

01:22:19,310 --> 01:22:17,820

we will have live commentary of that

1833

01:22:21,410 --> 01:22:19,320

demonstration right here on our

1834

01:22:23,270 --> 01:22:21,420

broadcast but right now here with me is

1835

01:22:26,390 --> 01:22:23,280

Tanya laughinghouse she is the program

1836

01:22:28,130 --> 01:22:26,400

manager for technology demonstrations at

1837

01:22:30,530 --> 01:22:28,140

Nasa good morning to you Tanya I gotta

1838

01:22:34,610 --> 01:22:30,540

ask you why is this new inflatable heat

1839

01:22:40,189 --> 01:22:37,550

well lofted is essentially a test flight

1840

01:22:41,930 --> 01:22:40,199

of an inflatable heat shield and all

1841

01:22:44,510 --> 01:22:41,940

prior flight tests of this technology

1842

01:22:46,970 --> 01:22:44,520

have been suborbital so that means they

1843

01:22:49,310 --> 01:22:46,980

go up and then they come back down well

1844

01:22:51,590 --> 01:22:49,320

today's test will actually be orbital so

1845

01:22:54,350 --> 01:22:51,600

we'll do a full orbit around the Earth

1846

01:22:56,510 --> 01:22:54,360

and come back and once it does that the

1847

01:22:58,610 --> 01:22:56,520

energy is going to be so much greater

1848

01:23:01,790 --> 01:22:58,620

and so we're really excited to see how

1849

01:23:03,770 --> 01:23:01,800

it performs at orbital velocities and

1850

01:23:05,689 --> 01:23:03,780

how could this technology be a game

1851

01:23:09,729 --> 01:23:05,699

changer for future missions into deep

1852

01:23:14,750 --> 01:23:12,709

well absolutely so when we're trying to

1853

01:23:18,169 --> 01:23:14,760

land a spacecraft into the thin

1854

01:23:20,270 --> 01:23:18,179

atmosphere of a planet like Mars we need

1855

01:23:23,030 --> 01:23:20,280

a really big heat shield in order to

1856

01:23:24,890 --> 01:23:23,040

slow it down safely and previous heat

1857

01:23:27,050 --> 01:23:24,900

shield diameters have typically been

1858

01:23:29,209 --> 01:23:27,060

limited to the size of the of the vessel

1859

01:23:31,130 --> 01:23:29,219

that it's launching in and so what's so

1860

01:23:33,530 --> 01:23:31,140

great about lofted is that its heat

1861

01:23:36,649 --> 01:23:33,540

shield is pliable so you're able to fold

1862

01:23:38,930 --> 01:23:36,659

it in compact it varied tight into the

1863

01:23:41,330 --> 01:23:38,940

spacecraft and so that means you have

1864

01:23:43,189 --> 01:23:41,340

additional room for other high mass

1865

01:23:46,810 --> 01:23:43,199

items that are needed for crude Mission

1866

01:23:51,410 --> 01:23:46,820

to Mars items like oxygen sensors like

1867

01:23:53,270 --> 01:23:51,420

entry Vehicles habitats Rovers Etc so I

1868

01:23:54,649 --> 01:23:53,280

see the space applications but you and I

1869

01:23:57,590 --> 01:23:54,659

were also talking about this earlier

1870

01:24:01,990 --> 01:23:57,600

that there are Earth applications for

1871

01:24:07,310 --> 01:24:05,390

absolutely so in NASA space Tech we love

1872

01:24:10,790 --> 01:24:07,320

to say that technology drives

1873

01:24:13,490 --> 01:24:10,800

exploration but another huge objective

1874

01:24:16,070 --> 01:24:13,500

for space tech programs like technology

1875

01:24:18,590 --> 01:24:16,080

demonstration admissions program that I

1876
01:24:20,990 --> 01:24:18,600
manage is that they are directly aligned

1877
01:24:22,970 --> 01:24:21,000
with NASA's strategic objective to

1878
01:24:25,550 --> 01:24:22,980
develop technologies that improve the

1879
01:24:27,470 --> 01:24:25,560
quality of life here on Earth and a

1880
01:24:31,850 --> 01:24:27,480
prime example of that Megan to your

1881
01:24:33,709 --> 01:24:31,860
question is the spin-off Tech from the

1882
01:24:36,290 --> 01:24:33,719
heat shield materials the materials that

1883
01:24:38,450 --> 01:24:36,300
we make the heat shields NASA and the

1884
01:24:41,390 --> 01:24:38,460
U.S department of Agriculture developed

1885
01:24:43,729 --> 01:24:41,400
a prototype to improve a fire shelter

1886
01:24:46,250 --> 01:24:43,739
that protects firefighters and it's made

1887
01:24:48,470 --> 01:24:46,260
from the actual materials that come from

1888
01:24:50,090 --> 01:24:48,480

lofted Tanya thank you so much I love

1889

01:24:51,830 --> 01:24:50,100

when we can draw those parallels again

1890

01:24:53,630 --> 01:24:51,840

how we could use things in space but

1891

01:24:56,149 --> 01:24:53,640

also the same technology here on Earth

1892

01:24:58,669 --> 01:24:56,159

so thank you so much for that

1893

01:25:01,550 --> 01:24:58,679

and at the top of this broadcast we told

1894

01:25:03,709 --> 01:25:01,560

you today's launch was lsp's 100th

1895

01:25:05,030 --> 01:25:03,719

Mission as we mark this Milestone team

1896

01:25:08,890 --> 01:25:05,040

members look back at some of the

1897

01:25:25,910 --> 01:25:10,590

School status

1898

01:25:30,169 --> 01:25:28,610

and my first mission I worked was the

1899

01:25:32,570 --> 01:25:30,179

demonstration of autonomous Rendezvous

1900

01:25:34,729 --> 01:25:32,580

technology basically it was

1901

01:25:38,390 --> 01:25:34,739

demonstrating the technology of

1902

01:25:40,550 --> 01:25:38,400

autonomously docking to a spacecraft in

1903

01:25:42,770 --> 01:25:40,560

space at the time I didn't really

1904

01:25:45,290 --> 01:25:42,780

understand or know what that technology

1905

01:25:47,390 --> 01:25:45,300

was being useful but now that technology

1906

01:25:49,430 --> 01:25:47,400

has been heavily used today my first

1907

01:25:50,990 --> 01:25:49,440

assignment was Lucy as a backup

1908

01:25:53,810 --> 01:25:51,000

integration engineer

1909

01:25:55,370 --> 01:25:53,820

I felt overwhelmed at first but I

1910

01:25:58,250 --> 01:25:55,380

started to realize I had the full

1911

01:26:00,050 --> 01:25:58,260

support of my management team I had all

1912

01:26:03,410 --> 01:26:00,060

their years of experience that I could

1913

01:26:05,750 --> 01:26:03,420

count on as sort of standing behind me

1914

01:26:07,910 --> 01:26:05,760

we hit our Mark we launched on the first

1915

01:26:09,350 --> 01:26:07,920

second of our planetary window that

1916

01:26:10,610 --> 01:26:09,360

we've been targeting for over three

1917

01:26:13,910 --> 01:26:10,620

years

1918

01:26:16,729 --> 01:26:13,920

Sojourner was my very first ever since

1919

01:26:20,450 --> 01:26:16,739

that mission I've been a part of every

1920

01:26:24,590 --> 01:26:20,460

other Rover that has landed on Mars

1921

01:26:27,350 --> 01:26:24,600

spirit and opportunity I was also the

1922

01:26:30,770 --> 01:26:27,360

launch director for MSL

1923

01:26:33,050 --> 01:26:30,780

and curiosity so those are always

1924

01:26:34,669 --> 01:26:33,060

something that I could look back and say

1925

01:26:38,870 --> 01:26:34,679

wow

1926

01:26:42,229 --> 01:26:38,880

I was fortunate enough to be in a right

1927

01:26:45,290 --> 01:26:42,239

job to be able to do this and do my

1928

01:26:48,290 --> 01:26:45,300

little part to make that happen

1929

01:26:50,330 --> 01:26:48,300

after a experiencing my very first LSP

1930

01:26:52,610 --> 01:26:50,340

Mission I think is when reality hit me

1931

01:26:55,129 --> 01:26:52,620

that I get to be a part of this

1932

01:26:57,649 --> 01:26:55,139

incredible team that's making history

1933

01:27:01,189 --> 01:26:57,659

really and is helping all of humanity

1934

01:27:05,330 --> 01:27:02,990

the heat shield test we'll see later

1935

01:27:07,129 --> 01:27:05,340

today is led by NASA's Langley Research

1936

01:27:08,689 --> 01:27:07,139

Center in Hampton Virginia let's head

1937

01:27:10,250 --> 01:27:08,699

back over there with NASA's Angelique

1938

01:27:11,689 --> 01:27:10,260

Herring who's with the lofted team

1939

01:27:17,050 --> 01:27:11,699

Angelique tell me what are they

1940

01:27:22,129 --> 01:27:20,270

hey Megan over here the team is waiting

1941

01:27:24,229 --> 01:27:22,139

for the re-entry vehicle to actually

1942

01:27:25,790 --> 01:27:24,239

power on that will in a lot of ways Mark

1943

01:27:28,070 --> 01:27:25,800

the beginning of today's lofted

1944

01:27:30,229 --> 01:27:28,080

demonstration after the re-entry vehicle

1945

01:27:31,669 --> 01:27:30,239

powers on it'll be time for the heat

1946

01:27:33,709 --> 01:27:31,679

shield to actually start to inflate

1947

01:27:36,169 --> 01:27:33,719

during that time it'll go from its

1948

01:27:37,790 --> 01:27:36,179

stowed size to the full six meter size

1949

01:27:40,669 --> 01:27:37,800

in the 10 minutes or so that it'll take

1950

01:27:42,590 --> 01:27:40,679

to inflate and that will be a really

1951

01:27:44,870 --> 01:27:42,600

exciting time after that there will be

1952

01:27:47,510 --> 01:27:44,880

separation and then the real-time Beacon

1953

01:27:49,310 --> 01:27:47,520

will turn on transmitting the data that

1954

01:27:51,770 --> 01:27:49,320

the team will be monitoring here at the

1955

01:27:53,390 --> 01:27:51,780

flight Mission support center now the

1956

01:27:55,910 --> 01:27:53,400

team here a lot of the members have

1957

01:27:58,070 --> 01:27:55,920

actually been working on lofted for over

1958

01:27:59,750 --> 01:27:58,080

10 years since it started right here at

1959

01:28:01,490 --> 01:27:59,760

Nasa Langley Research Center and that

1960

01:28:04,310 --> 01:28:01,500

might be why they are particularly

1961

01:28:06,709 --> 01:28:04,320

excited to you know explore today and

1962

01:28:08,810 --> 01:28:06,719

see just what the hi-add technology can

1963

01:28:10,850 --> 01:28:08,820

do and what lofted can show us about

1964

01:28:13,189 --> 01:28:10,860

that technology for right now though

1965

01:28:14,930 --> 01:28:13,199

we're going to be waiting anxiously for

1966

01:28:16,790 --> 01:28:14,940

the official start of the lofted

1967

01:28:18,709 --> 01:28:16,800

demonstration with the turning on of the

1968

01:28:20,390 --> 01:28:18,719

Rand entry vehicle and that real-time

1969

01:28:22,070 --> 01:28:20,400

Beacon with that we're going to head

1970

01:28:23,629 --> 01:28:22,080

back over to you

1971

01:28:26,510 --> 01:28:23,639

but before Aloft did we must

1972

01:28:28,610 --> 01:28:26,520

successfully deploy jpss into space JPS

1973

01:28:30,649 --> 01:28:28,620

weather satellites are considered the

1974

01:28:32,810 --> 01:28:30,659

backbone of noaa's global observing

1975

01:28:38,090 --> 01:28:32,820

system NASA's Jasmine Hopkins spoke with

1976

01:28:43,010 --> 01:28:40,370

joining us now is Jim Gleason project

1977

01:28:45,110 --> 01:28:43,020

scientist for the jpss flight project

1978

01:28:47,030 --> 01:28:45,120

thanks so much for being here Jim thank

1979

01:28:49,129 --> 01:28:47,040

you Jasmine glad to be here of course

1980

01:28:51,169 --> 01:28:49,139

we're glad to have you so you work for

1981

01:28:54,590 --> 01:28:51,179

Goddard space flight center in Maryland

1982

01:28:57,350 --> 01:28:54,600

can you tell me what does Goddard do for

1983

01:28:59,209 --> 01:28:57,360

jpss and other weather satellites well

1984

01:29:02,030 --> 01:28:59,219

NASA and NOAA have had a 50-year

1985

01:29:04,250 --> 01:29:02,040

partnership in launching weather

1986

01:29:05,689 --> 01:29:04,260

satellites for the nation and Goddard

1987

01:29:07,970 --> 01:29:05,699

space flight center is where those

1988

01:29:10,729 --> 01:29:07,980

satellites are built for NOAA we get

1989

01:29:12,470 --> 01:29:10,739

together with NOAA they decide what they

1990

01:29:15,169 --> 01:29:12,480

want what they want their satellites to

1991

01:29:17,149 --> 01:29:15,179

do and we at Goddard we build them we

1992

01:29:19,310 --> 01:29:17,159

launch them check them out and turn them

1993

01:29:21,350 --> 01:29:19,320

over once they're all running properly

1994

01:29:22,729 --> 01:29:21,360

that is awesome a great partnership and

1995

01:29:24,350 --> 01:29:22,739

then it comes all the way over here to

1996

01:29:26,390 --> 01:29:24,360

Vandenberg space force base in

1997

01:29:28,430 --> 01:29:26,400

California for launch that's exactly so

1998

01:29:31,010 --> 01:29:28,440

we're at the at the tail end of the

1999

01:29:32,750 --> 01:29:31,020

process for jpss2 we'll have a

2000

01:29:35,810 --> 01:29:32,760

successful launch and checkout and then

2001

01:29:37,910 --> 01:29:35,820

the jpss2 data will be joining all the

2002

01:29:39,950 --> 01:29:37,920

rest of the Polar satellite and other

2003

01:29:41,629 --> 01:29:39,960

satellites in the NOAA system to make

2004

01:29:43,550 --> 01:29:41,639

the products and forecasts that everyone

2005

01:29:45,770 --> 01:29:43,560

depends on exactly and just as you

2006

01:29:48,709 --> 01:29:45,780

mentioned that that satellite system a

2007

01:29:50,990 --> 01:29:48,719

GPS S2 has four very complex instruments

2008

01:29:53,330 --> 01:29:51,000

on it can you tell me your role and your

2009

01:29:55,669 --> 01:29:53,340

focus on those well each of the four

2010

01:29:57,830 --> 01:29:55,679

instruments does something special for

2011

01:29:59,750 --> 01:29:57,840

NOAA they're they're incredibly complex

2012

01:30:01,070 --> 01:29:59,760

they measure the temperature of the

2013

01:30:05,030 --> 01:30:01,080

atmosphere they measure the temperature

2014

01:30:06,850 --> 01:30:05,040

of the surface of the ocean various look

2015

01:30:09,770 --> 01:30:06,860

at how how green the vegetation is

2016

01:30:12,050 --> 01:30:09,780

aerosol smoke complicated instruments

2017

01:30:13,850 --> 01:30:12,060

are are hard to build they have many

2018

01:30:16,610 --> 01:30:13,860

requirements and it's my job to make

2019

01:30:18,350 --> 01:30:16,620

sure that the instruments perform to

2020

01:30:20,030 --> 01:30:18,360

what no one needs so they can make the

2021

01:30:21,229 --> 01:30:20,040

products and services right that's a

2022

01:30:23,270 --> 01:30:21,239

pretty important job that making sure

2023

01:30:25,430 --> 01:30:23,280

that they all work correctly and some of

2024

01:30:27,649 --> 01:30:25,440

these complex instruments have also been

2025

01:30:29,149 --> 01:30:27,659

on previous satellites in the system so

2026

01:30:31,070 --> 01:30:29,159

why is it important that the data is

2027

01:30:33,530 --> 01:30:31,080

consistent well there's there's two

2028

01:30:37,550 --> 01:30:33,540

kinds of consistency there's the the

2029

01:30:39,470 --> 01:30:37,560

consistency of JPS S1 and JPS S2 and

2030

01:30:41,629 --> 01:30:39,480

hopefully three and four so that the

2031

01:30:42,649 --> 01:30:41,639

forecasters have a kind of data that

2032

01:30:45,649 --> 01:30:42,659

they're used to and they don't have to

2033

01:30:47,689 --> 01:30:45,659

change their weather models too much to

2034

01:30:49,610 --> 01:30:47,699

adjust for the new data they like a

2035

01:30:52,729 --> 01:30:49,620

consistent product

2036

01:30:55,310 --> 01:30:52,739

from a long-term perspective we we have

2037

01:30:57,770 --> 01:30:55,320

invested in in Satellite data to measure

2038

01:31:00,169 --> 01:30:57,780

the Earth for four decades and by

2039

01:31:02,570 --> 01:31:00,179

putting those satellite data's

2040

01:31:04,129 --> 01:31:02,580

data records together over the decades

2041

01:31:06,350 --> 01:31:04,139

we can understand if there's any change

2042

01:31:09,830 --> 01:31:06,360

so we are connecting data from the post

2043

01:31:12,709 --> 01:31:09,840

satellites in the in the 70s to the jpss

2044

01:31:14,450 --> 01:31:12,719

satellites in the 20 20s wow that is

2045

01:31:16,550 --> 01:31:14,460

awesome very consistent data over

2046

01:31:18,350 --> 01:31:16,560

decades decades yeah absolutely Jim

2047

01:31:20,330 --> 01:31:18,360

Gleason thank you so much for joining us

2048

01:31:22,910 --> 01:31:20,340

back to you

2049

01:31:24,709 --> 01:31:22,920

okay we're now minutes away from jpss to

2050

01:31:26,629 --> 01:31:24,719

separation let's head back on over to

2051
01:31:29,689 --> 01:31:26,639
you know who Daryl and Mick all right

2052
01:31:32,450 --> 01:31:29,699
thank you Megan yes we are here awaiting

2053
01:31:35,930 --> 01:31:32,460
the separation of jpss2 just seconds

2054
01:31:37,490 --> 01:31:35,940
away uh Mick this is the big moment yes

2055
01:31:40,610 --> 01:31:37,500
what we've been waiting for right to get

2056
01:31:43,310 --> 01:31:40,620
this primary mission jps's 2 separated

2057
01:31:46,370 --> 01:31:43,320
and on its way uh to uh participate with

2058
01:31:48,590 --> 01:31:46,380
J-1 and NPP and delivering weather

2059
01:31:52,010 --> 01:31:48,600
satellite weather data for us so

2060
01:31:53,750 --> 01:31:52,020
exciting here as we get ready for this

2061
01:31:55,910 --> 01:31:53,760
separation of interviews up shortly

2062
01:31:58,189 --> 01:31:55,920
continuing to see uh stable performance

2063
01:32:00,169 --> 01:31:58,199

across all Centaur systems

2064

01:32:13,910 --> 01:32:00,179

we're expecting that separation in just

2065

01:32:18,830 --> 01:32:15,709

and we've had good indication of

2066

01:32:20,810 --> 01:32:18,840

separation of the jpss2 spacecraft and

2067

01:32:23,750 --> 01:32:20,820

there you have it

2068

01:32:25,910 --> 01:32:23,760

separation of jpss2

2069

01:32:27,590 --> 01:32:25,920

and Centaur is now completing its uh

2070

01:32:31,189 --> 01:32:27,600

collision avoidance maneuver following

2071

01:32:36,229 --> 01:32:34,070

and you saw the folks there and the

2072

01:32:42,890 --> 01:32:36,239

Ula launch control room with a round of

2073

01:32:46,550 --> 01:32:44,689

and seeing the Centaur body rates

2074

01:32:50,870 --> 01:32:46,560

stabilized following the turn to the

2075

01:32:58,090 --> 01:32:53,270

NASA launch manager Omar Baez getting

2076

01:33:02,689 --> 01:33:00,470

jpss2 project manager Andre duress

2077

01:33:05,030 --> 01:33:02,699

they're congratulating Omar and I know

2078

01:33:08,750 --> 01:33:05,040

Andre's very happy as long as well as

2079

01:33:11,810 --> 01:33:08,760

the jpss team to have uh J2 separated

2080

01:33:14,209 --> 01:33:11,820

and on its way as we heard Centaur

2081

01:33:16,669 --> 01:33:14,219

performed a sea cam maneuver this is a

2082

01:33:19,610 --> 01:33:16,679

maneuver to make sure that Centaur is

2083

01:33:21,770 --> 01:33:19,620

out of the way as it gets ready to

2084

01:33:24,350 --> 01:33:21,780

restart its engines for the next phase

2085

01:33:28,129 --> 01:33:24,360

of this mission for lofted that we don't

2086

01:33:30,910 --> 01:33:28,139

hit into the J2 satellite so things are

2087

01:33:35,450 --> 01:33:30,920

going well with the mission so far and

2088

01:33:46,450 --> 01:33:35,460

settling and RCS continues to work on

2089

01:33:56,270 --> 01:33:49,010

Mission managers are Sean Daly there at

2090

01:34:02,510 --> 01:34:00,649

years of hard work paying off now Meg

2091

01:34:05,629 --> 01:34:02,520

a lot of these folks have spent a lot of

2092

01:34:09,830 --> 01:34:05,639

time working J2 to get it to this point

2093

01:34:11,990 --> 01:34:09,840

and working through stuff for I think 30

2094

01:34:13,729 --> 01:34:12,000

minutes into flight continuing to see uh

2095

01:34:16,070 --> 01:34:13,739

stable body rates out of Centaur

2096

01:34:19,250 --> 01:34:16,080

centaurwell Coast for approximately

2097

01:34:21,290 --> 01:34:19,260

another 15 minutes prior to Mez 2.

2098

01:34:26,090 --> 01:34:21,300

uh continuing to see a good performance

2099

01:34:26,100 --> 01:34:31,250

I am very stable body rates as well

2100

01:34:36,169 --> 01:34:33,590

and as you look at this animation of

2101

01:34:38,330 --> 01:34:36,179

Centaur there's still

2102

01:34:41,149 --> 01:34:38,340

a vehicle attached to it that's lofted

2103

01:34:43,910 --> 01:34:41,159

encased at the end the far left end of

2104

01:34:48,410 --> 01:34:43,920

the vehicle lofted inside of a payload

2105

01:34:50,149 --> 01:34:48,420

adapter that once held jpss2 it's now

2106

01:34:52,010 --> 01:34:50,159

been released

2107

01:34:53,930 --> 01:34:52,020

and this is the second part of the

2108

01:34:56,090 --> 01:34:53,940

flight the primary Mission now

2109

01:34:57,950 --> 01:34:56,100

accomplished

2110

01:35:01,070 --> 01:34:57,960

we're looking for that acquisition of

2111

01:35:08,930 --> 01:35:05,330

from kpss2 but uh

2112

01:35:11,450 --> 01:35:08,940

also transitioning now to the lofted

2113

01:35:13,910 --> 01:35:11,460

tech demonstration

2114

01:35:16,910 --> 01:35:13,920

yeah absolutely Daryl uh as the team is

2115

01:35:18,590 --> 01:35:16,920

continuing its uh slow playback of some

2116

01:35:21,290 --> 01:35:18,600

of the data from through the tdrs

2117

01:35:24,530 --> 01:35:21,300

network for that video that we hope to

2118

01:35:26,510 --> 01:35:24,540

see uh a little later the team is also

2119

01:35:29,510 --> 01:35:26,520

waiting to hear about acquisition signal

2120

01:35:32,209 --> 01:35:29,520

of jpss2 making sure that it's power

2121

01:35:36,050 --> 01:35:32,219

positive and getting ready to perform

2122

01:35:36,830 --> 01:35:36,060

its tasks with Solar Ray deployment and

2123

01:35:39,649 --> 01:35:36,840

um

2124

01:35:42,830 --> 01:35:39,659

powering up some of the other systems as

2125

01:35:44,169 --> 01:35:42,840

they get ready to bring jpss2 completely

2126
01:35:48,050 --> 01:35:44,179
online

2127
01:35:53,209 --> 01:35:50,990
and while uh the mood is

2128
01:35:55,310 --> 01:35:53,219
celebratory here at the mission

2129
01:35:57,110 --> 01:35:55,320
directors Center in Vandenberg

2130
01:35:59,510 --> 01:35:57,120
California for a lot of the folks here

2131
01:36:02,450 --> 01:35:59,520
and the team here are thoughts and

2132
01:36:04,430 --> 01:36:02,460
prayers are with our family loved ones

2133
01:36:08,330 --> 01:36:04,440
and friends who are back home in Florida

2134
01:36:10,910 --> 01:36:08,340
as hurricane Nicole made landfall

2135
01:36:12,890 --> 01:36:10,920
now just about 30 minutes ago in Vero

2136
01:36:14,870 --> 01:36:12,900
Beach according to reports

2137
01:36:16,850 --> 01:36:14,880
it's weakened now to a tropical storm

2138
01:36:19,490 --> 01:36:16,860

but of course that's just 60 miles south

2139

01:36:22,370 --> 01:36:19,500

of our base camp at the Kennedy Space

2140

01:36:24,770 --> 01:36:22,380

Center in Florida and so as I know

2141

01:36:28,310 --> 01:36:24,780

you've been texting your wife and I have

2142

01:36:29,870 --> 01:36:28,320

mine uh getting updates about the action

2143

01:36:32,090 --> 01:36:29,880

of the storm there and how that's

2144

01:36:34,430 --> 01:36:32,100

impacting the area we've got some strong

2145

01:36:36,050 --> 01:36:34,440

winds that our home center is currently

2146

01:36:37,910 --> 01:36:36,060

experiencing

2147

01:36:39,530 --> 01:36:37,920

um that's something certainly uh on our

2148

01:36:41,209 --> 01:36:39,540

hearts and Minds yeah definitely

2149

01:36:42,649 --> 01:36:41,219

thinking about it uh Daryl but you know

2150

01:36:44,209 --> 01:36:42,659

I also sit here and think about the fact

2151

01:36:47,570 --> 01:36:44,219

that we just launched a weather

2152

01:36:48,950 --> 01:36:47,580

satellite another one and I'm very

2153

01:36:51,470 --> 01:36:48,960

thankful for the weather satellites we

2154

01:36:54,050 --> 01:36:51,480

have up there already in the JPS S1

2155

01:36:55,689 --> 01:36:54,060

series and the go series that work

2156

01:36:59,090 --> 01:36:55,699

together in conjunction with each other

2157

01:37:01,370 --> 01:36:59,100

to determine our weather data and bring

2158

01:37:03,709 --> 01:37:01,380

forecasters most accurate data they can

2159

01:37:05,149 --> 01:37:03,719

for situations just like this that we're

2160

01:37:08,510 --> 01:37:05,159

experiencing over in Kennedy Space

2161

01:37:10,850 --> 01:37:08,520

Center in Florida so ironic or very

2162

01:37:12,530 --> 01:37:10,860

heartwarming to know that we just added

2163

01:37:15,470 --> 01:37:12,540

another satellite to this constellation

2164

01:37:20,030 --> 01:37:15,480

to help the nation well said Mick

2165

01:37:22,970 --> 01:37:20,040

certainly jpss2 that's its wheelhouse

2166

01:37:24,770 --> 01:37:22,980

and severe weather absolutely all right

2167

01:37:26,689 --> 01:37:24,780

we're going to keep monitoring situation

2168

01:37:28,510 --> 01:37:26,699

we're going to be uh looking for that

2169

01:37:30,950 --> 01:37:28,520

next burn 33 minutes into flight

2170

01:37:31,970 --> 01:37:30,960

continuing to see stable body rates out

2171

01:37:34,370 --> 01:37:31,980

of Centaur

2172

01:37:35,930 --> 01:37:34,380

um we have seen the RCs system go to 100

2173

01:37:37,790 --> 01:37:35,940

settling

2174

01:37:39,590 --> 01:37:37,800

good report out there from Centaur we'll

2175

01:37:41,629 --> 01:37:39,600

keep monitoring it but for now we'll

2176

01:37:43,970 --> 01:37:41,639

throw it back to Megan

2177

01:37:46,850 --> 01:37:43,980

and to celebrate the launch of jpss2

2178

01:37:49,370 --> 01:37:46,860

NOAA asked for photos of the places you

2179

01:37:52,070 --> 01:37:49,380

love places the satellite will protect

2180

01:37:53,930 --> 01:37:52,080

by observing the earth atmosphere and

2181

01:38:01,100 --> 01:37:53,940

erosions

2182

01:38:01,110 --> 01:38:33,189

[Music]

2183

01:38:52,790 --> 01:38:37,070

damn well the rights

2184

01:38:52,800 --> 01:38:57,150

still resides

2185

01:38:57,160 --> 01:39:01,430

[Music]

2186

01:39:01,440 --> 01:39:04,660

Hong Kong

2187

01:39:04,670 --> 01:39:13,629

[Music]

2188

01:39:18,410 --> 01:39:16,310

just give me your bad self

2189

01:39:19,790 --> 01:39:18,420

to see the rest of that video and all of

2190

01:39:23,510 --> 01:39:19,800

the pictures you shared with us because

2191

01:39:24,950 --> 01:39:23,520

we got a ton just uh take a look at the

2192

01:39:27,590 --> 01:39:24,960

screen there we're gonna put up a QR

2193

01:39:29,570 --> 01:39:27,600

code you can scan that QR code to to see

2194

01:39:31,070 --> 01:39:29,580

the rest of the pictures it's really

2195

01:39:33,830 --> 01:39:31,080

worth the watch and again as a reminder

2196

01:39:36,890 --> 01:39:33,840

of how beautiful our planet is and why

2197

01:39:39,470 --> 01:39:36,900

it's worth protecting real quick here's

2198

01:39:41,450 --> 01:39:39,480

my picture of a place I love I took this

2199

01:39:42,950 --> 01:39:41,460

photo about three years ago now in the

2200

01:39:45,770 --> 01:39:42,960

Philippines which is where my family is

2201

01:39:47,390 --> 01:39:45,780

from I just love the vibrant blues and

2202

01:39:49,970 --> 01:39:47,400

greens of that photo but I really chose

2203

01:39:52,250 --> 01:39:49,980

this picture to hammer home how weather

2204

01:39:54,709 --> 01:39:52,260

satellites help us all the time because

2205

01:39:57,410 --> 01:39:54,719

while I was on that trip a volcano

2206

01:40:00,470 --> 01:39:57,420

erupted Airline officials used weather

2207

01:40:03,530 --> 01:40:00,480

satellite data to track the amount of

2208

01:40:07,070 --> 01:40:03,540

volcanic ash in the sky to let us know

2209

01:40:09,229 --> 01:40:07,080

when it was clear enough to fly home

2210

01:40:10,490 --> 01:40:09,239

now let's head back over to Daryl and

2211

01:40:12,350 --> 01:40:10,500

Mick again as they've been saying we're

2212

01:40:14,510 --> 01:40:12,360

still waiting a confirmation of

2213

01:40:16,669 --> 01:40:14,520

acquisition of signal so let's see what

2214

01:40:19,189 --> 01:40:16,679

we have now Megan we have confirmation

2215

01:40:21,770 --> 01:40:19,199

of that acquisition of signal we can

2216

01:40:25,370 --> 01:40:21,780

report out to you so uh good news there

2217

01:40:28,370 --> 01:40:25,380

the jps2 weather satellite now

2218

01:40:30,110 --> 01:40:28,380

communicating with ground stations and

2219

01:40:31,490 --> 01:40:30,120

yet another thing to celebrate with

2220

01:40:34,070 --> 01:40:31,500

regards to this weather satellite

2221

01:40:36,910 --> 01:40:34,080

absolutely Solar Ray deploy uh confirmed

2222

01:40:40,490 --> 01:40:36,920

so the satellite is looking very healthy

2223

01:40:43,310 --> 01:40:40,500

jpsst 2 team is very happy with this so

2224

01:40:46,850 --> 01:40:43,320

uh very happy to hear from Omar Baez our

2225

01:40:48,770 --> 01:40:46,860

launch manager that we did acquire the

2226

01:40:52,450 --> 01:40:48,780

jpss2 satellite and everything's going

2227

01:40:56,209 --> 01:40:52,460

well and now we're awaiting some imagery

2228

01:40:58,990 --> 01:40:56,219

some video from Centaur of that moment

2229

01:41:02,270 --> 01:40:59,000

of separation for the jpss2 satellite

2230

01:41:03,770 --> 01:41:02,280

looking forward to seeing that but in

2231

01:41:05,270 --> 01:41:03,780

the meantime I want to point your

2232

01:41:09,050 --> 01:41:05,280

attention to the animation that we're

2233

01:41:12,410 --> 01:41:09,060

looking at that's the centaur are facing

2234

01:41:13,970 --> 01:41:12,420

in a downward position with lofted aimed

2235

01:41:16,250 --> 01:41:13,980

in that direction and there's a good

2236

01:41:18,229 --> 01:41:16,260

reason for that Mick yeah as we get

2237

01:41:21,290 --> 01:41:18,239

ready for this next burn this next burn

2238

01:41:24,169 --> 01:41:21,300

will take Centaur and lofted into a into

2239

01:41:25,729 --> 01:41:24,179

a lower altitude which will then begin

2240

01:41:28,189 --> 01:41:25,739

the operations for the lofted

2241

01:41:30,229 --> 01:41:28,199

demonstration Mission as they get ready

2242

01:41:33,350 --> 01:41:30,239

to do their work and then have them

2243

01:41:34,790 --> 01:41:33,360

separate and then do their re-entry here

2244

01:41:37,729 --> 01:41:34,800

into Earth and we're going to hear a lot

2245

01:41:39,530 --> 01:41:37,739

more about that later but excited about

2246

01:41:41,570 --> 01:41:39,540

the lofted mission and the things that

2247

01:41:43,729 --> 01:41:41,580

it is going to demonstrate for us for

2248

01:41:46,370 --> 01:41:43,739

future missions to Mars and possible

2249

01:41:50,629 --> 01:41:46,380

Hardware recovery for Rockets absolutely

2250

01:41:54,050 --> 01:41:50,639

and we are flying t plus 37 minutes and

2251

01:41:56,689 --> 01:41:54,060

50 seconds into our flight

2252

01:41:59,330 --> 01:41:56,699

it's been a good one launching at 1 49

2253

01:42:02,390 --> 01:41:59,340

a.m Pacific time

2254

01:42:06,109 --> 01:42:02,400

4 49 a.m Eastern Time

2255

01:42:08,330 --> 01:42:06,119

awaiting now some imagery downlinked

2256

01:42:10,970 --> 01:42:08,340

from the centaur

2257

01:42:13,729 --> 01:42:10,980

that shows the moment of separation for

2258

01:42:16,729 --> 01:42:13,739

jpss2

2259

01:42:18,530 --> 01:42:16,739

The Joint polar satellite system

2260

01:42:20,209 --> 01:42:18,540

that's going to provide advancements to

2261

01:42:22,490 --> 01:42:20,219

improve the accuracy of our weather

2262

01:42:24,590 --> 01:42:22,500

forecasts something we certainly

2263

01:42:26,090 --> 01:42:24,600

appreciate now

2264

01:42:29,090 --> 01:42:26,100

more than ever

2265

01:42:43,310 --> 01:42:29,100

with a stone with a storm tropical storm

2266

01:42:43,320 --> 01:42:55,609

again we have

2267

01:43:02,570 --> 01:42:57,970

we had successful separation of the

2268

01:43:06,530 --> 01:43:04,430

and minutes later

2269

01:43:15,530 --> 01:43:06,540

got acquisition of signal from the

2270

01:43:26,390 --> 01:43:19,310

the atlas 5 401 rocket delivering that

2271

01:43:34,189 --> 01:43:29,149

what's been described as a nominal

2272

01:43:38,330 --> 01:43:36,470

and coming up on 40 minutes into flight

2273

01:43:40,430 --> 01:43:38,340

about six minutes remaining in the coast

2274

01:43:44,330 --> 01:43:40,440

continuing to see good performance from

2275

01:43:46,790 --> 01:43:44,340

RCs a very stable Centaur body rates

2276

01:43:52,729 --> 01:43:46,800

near null and a very stable battery

2277

01:43:56,689 --> 01:43:54,410

we talked about a number of dedications

2278

01:43:57,410 --> 01:43:56,699

uh making the pre-launch portion of the

2279

01:43:59,270 --> 01:43:57,420

show

2280

01:44:01,250 --> 01:43:59,280

I want to revisit one of those and

2281

01:44:03,890 --> 01:44:01,260

that's uh the dedication to Mark

2282

01:44:05,629 --> 01:44:03,900

Levesque in 2007

2283

01:44:07,550 --> 01:44:05,639

Mark accepted a position with United

2284

01:44:08,270 --> 01:44:07,560

launch Alliance at Vandenberg Air Force

2285

01:44:10,370 --> 01:44:08,280

Base

2286

01:44:13,250 --> 01:44:10,380

where he worked as a test conductor an

2287

01:44:15,590 --> 01:44:13,260

anomaly chief and achieved his lifelong

2288

01:44:17,450 --> 01:44:15,600

dream by rising to the position of

2289

01:44:21,950 --> 01:44:17,460

launch conductor for Missions launching

2290

01:44:24,590 --> 01:44:21,960

on Delta II Delta IV and Atlas V Rockets

2291

01:44:27,530 --> 01:44:24,600

Levesque retired early but was diagnosed

2292

01:44:29,810 --> 01:44:27,540

with cancer in 2018 and passed away

2293

01:44:32,270 --> 01:44:29,820

three years later

2294

01:44:34,609 --> 01:44:32,280

make I know you knew Mark well

2295

01:44:36,290 --> 01:44:34,619

worked for him worked with him for a

2296

01:44:38,149 --> 01:44:36,300

number of years

2297

01:44:42,350 --> 01:44:38,159

it's nice to have this Mission dedicated

2298

01:44:43,910 --> 01:44:42,360

to him yeah the team NASA LSP team and

2299

01:44:45,709 --> 01:44:43,920

the United launch Alliance team are very

2300

01:44:48,410 --> 01:44:45,719

happy to have Mark's name on this rocket

2301

01:44:50,570 --> 01:44:48,420

he was a incredible engineer uh

2302

01:44:52,850 --> 01:44:50,580

incredible Mentor incredible friend to a

2303

01:44:55,370 --> 01:44:52,860

lot of us Mark is one of the smartest

2304

01:44:57,350 --> 01:44:55,380

guys I knew on the launch ladder logic

2305

01:44:59,689 --> 01:44:57,360

in the electrical systems here at space

2306

01:45:01,850 --> 01:44:59,699

launch complex 3. I had the privilege of

2307

01:45:05,330 --> 01:45:01,860

working for Mark in 1999 when we

2308

01:45:08,030 --> 01:45:05,340

launched ac-141 off of this pad and for

2309

01:45:10,970 --> 01:45:08,040

several missions later not only as a

2310

01:45:14,330 --> 01:45:10,980

NASA employee but a Ula employee and his

2311

01:45:16,010 --> 01:45:14,340

dedication to space and to continuing

2312

01:45:18,890 --> 01:45:16,020

that education to others was just

2313

01:45:21,229 --> 01:45:18,900

amazing Mark was an amazing guy and he

2314

01:45:24,229 --> 01:45:21,239

will be missed by all of his teammates

2315

01:45:27,050 --> 01:45:24,239

and his wife was here to watch the

2316

01:45:28,370 --> 01:45:27,060

moment here sitting in the uh VIP

2317

01:45:32,750 --> 01:45:28,380

section

2318

01:45:36,590 --> 01:45:34,250

in the meantime we'll continue to

2319

01:45:37,609 --> 01:45:36,600

monitor the progress of uh Centaur and

2320

01:45:39,229 --> 01:45:37,619

lofted

2321

01:45:40,970 --> 01:45:39,239

I'll send it back to Megan at the host

2322

01:45:42,950 --> 01:45:40,980

desk

2323

01:45:45,590 --> 01:45:42,960

and Mark Levesque was one of two

2324

01:45:47,689 --> 01:45:45,600

dedications today let's meet the man who

2325

01:45:51,500 --> 01:45:47,699

today's heat shield flight test is

2326

01:45:56,570 --> 01:45:53,169

[Music]

2327

01:45:58,729 --> 01:45:56,580

one of the reasons that I became really

2328

01:46:00,890 --> 01:45:58,739

excited about space this was even before

2329

01:46:03,709 --> 01:46:00,900

high school back in the early up

2330

01:46:05,450 --> 01:46:03,719

holidays the first Apollo Landing I was

2331

01:46:07,729 --> 01:46:05,460

watching that I was all of three years

2332

01:46:09,830 --> 01:46:07,739

old with my mom and she was trying to

2333

01:46:12,890 --> 01:46:09,840

explain to me how these were the first

2334

01:46:16,250 --> 01:46:12,900

people to ever set foot on the Moon

2335

01:46:18,290 --> 01:46:16,260

I asked her in my young wisdom if she

2336

01:46:20,149 --> 01:46:18,300

had ever been to the Moon

2337

01:46:22,729 --> 01:46:20,159

she tried to explain well these are the

2338

01:46:24,169 --> 01:46:22,739

first no I haven't been there so I

2339

01:46:26,090 --> 01:46:24,179

promised her at that point that I would

2340

01:46:28,790 --> 01:46:26,100

someday take her to the Moon

2341

01:46:31,550 --> 01:46:28,800

doing my best to keep my promise

2342

01:46:33,649 --> 01:46:31,560

he called excitedly to tell me about

2343

01:46:36,109 --> 01:46:33,659

Ula having been awarded four of the six

2344

01:46:39,590 --> 01:46:36,119

flights in the next page of lunar

2345

01:46:41,570 --> 01:46:39,600

exploration and said Mom I'm a step

2346

01:46:43,129 --> 01:46:41,580

closer to fulfilling my promise to you

2347

01:46:45,770 --> 01:46:43,139

as a four-year-old

2348

01:46:47,689 --> 01:46:45,780

and that was just five days before he

2349

01:46:49,430 --> 01:46:47,699

passed away

2350

01:46:50,990 --> 01:46:49,440

I like to think that perhaps he's

2351

01:46:53,689 --> 01:46:51,000

wandering the Moon

2352

01:46:56,390 --> 01:46:53,699

Bernard was our chief rocket scientist

2353

01:46:58,850 --> 01:46:56,400

and he was absolutely instrumental in

2354

01:47:01,669 --> 01:46:58,860

all of our future Technologies Bernard

2355

01:47:03,590 --> 01:47:01,679

is just a wonderful person and energetic

2356

01:47:05,570 --> 01:47:03,600

he was the energy in the room and the

2357

01:47:08,149 --> 01:47:05,580

full of ideas for me it was just

2358

01:47:09,770 --> 01:47:08,159

inspirational being around him he didn't

2359

01:47:11,810 --> 01:47:09,780

seem to think he could do most anything

2360

01:47:13,970 --> 01:47:11,820

you know and he'd come in a room and

2361

01:47:16,189 --> 01:47:13,980

he'd convince others of that

2362

01:47:18,590 --> 01:47:16,199

he was just a genius he was such a

2363

01:47:20,149 --> 01:47:18,600

brilliant guy and so creative well

2364

01:47:22,790 --> 01:47:20,159

Bernard cutter really was the driving

2365

01:47:24,830 --> 01:47:22,800

force behind a lofted mission he dreamed

2366

01:47:27,410 --> 01:47:24,840

up how this Mission could work with NASA

2367

01:47:29,209 --> 01:47:27,420

lofted is really cool it's an inflatable

2368

01:47:31,370 --> 01:47:29,219

heat shield so we can deflate it and

2369

01:47:33,350 --> 01:47:31,380

fold it up but then inflates into a

2370

01:47:35,149 --> 01:47:33,360

primary structure that will slow down a

2371

01:47:37,070 --> 01:47:35,159

payload as it re-enters and ultimately

2372

01:47:40,490 --> 01:47:37,080

this technology has kind of helped Ula

2373

01:47:42,290 --> 01:47:40,500

reuse engines and help NASA land on Mars

2374

01:47:43,850 --> 01:47:42,300

in the future well Bernard really

2375

01:47:46,189 --> 01:47:43,860

brought all this together without

2376

01:47:49,129 --> 01:47:46,199

Bernard cutter this Mission really could

2377

01:47:51,410 --> 01:47:49,139

not have happened NASA and magnet launch

2378

01:47:53,870 --> 01:47:51,420

Alliance are dedicating the low earth

2379

01:47:56,270 --> 01:47:53,880

orbit flight test of an inflatable

2380

01:47:59,149 --> 01:47:56,280

decelerator or the Loft admission in

2381

01:48:01,310 --> 01:47:59,159

honor Bernard cutter

2382

01:48:03,350 --> 01:48:01,320

it's quite an honor to have Bernard's

2383

01:48:05,209 --> 01:48:03,360

name on this Mission and part of it is

2384

01:48:07,250 --> 01:48:05,219

because of his enthusiasm about this

2385

01:48:09,410 --> 01:48:07,260

Mission but I really think it's bigger

2386

01:48:11,510 --> 01:48:09,420

than that it's his enthusiasm and his

2387

01:48:13,189 --> 01:48:11,520

influence across the whole industry he

2388

01:48:16,189 --> 01:48:13,199

was somebody who's always envisioning

2389

01:48:19,189 --> 01:48:16,199

ways to get humans into outer space we

2390

01:48:22,370 --> 01:48:19,199

can see how one person with vision hard

2391

01:48:24,350 --> 01:48:22,380

work and just enthusiasm can make a huge

2392

01:48:25,790 --> 01:48:24,360

difference his legacy is in the ideas

2393

01:48:27,470 --> 01:48:25,800

that he's been planting for the last

2394

01:48:30,290 --> 01:48:27,480

decade and will get developed for the

2395

01:48:33,370 --> 01:48:30,300

next 20 30 years Bernard planted all

2396

01:48:39,050 --> 01:48:36,290

what touching tributes to both Bernard

2397

01:48:41,149 --> 01:48:39,060

and Mark I know it means a lot to their

2398

01:48:43,250 --> 01:48:41,159

family and friends to be able to

2399

01:48:45,109 --> 01:48:43,260

remember and honor them today

2400

01:48:47,990 --> 01:48:45,119

let's head back over to Daryl and Mick

2401
01:48:49,669 --> 01:48:48,000
as we approach mes2 and Miko 2. yeah

2402
01:48:52,129 --> 01:48:49,679
that's right Megan Maine engine start

2403
01:48:54,950 --> 01:48:52,139
two we are awaiting uh that it's just a

2404
01:48:58,669 --> 01:48:54,960
few seconds away on the clock here 45

2405
01:49:01,070 --> 01:48:58,679
minutes and 41 seconds and currently uh

2406
01:49:03,770 --> 01:49:01,080
we're just uh Motor Performance uh

2407
01:49:05,870 --> 01:49:03,780
pre-burned sluice

2408
01:49:06,770 --> 01:49:05,880
just about 40 seconds away from that

2409
01:49:14,390 --> 01:49:06,780
burn

2410
01:49:16,850 --> 01:49:14,400
stage with fuel pre-third on the rl-10

2411
01:49:20,870 --> 01:49:16,860
lofted attached

2412
01:49:22,669 --> 01:49:20,880
it'll be 42.9 seconds a short burn

2413
01:49:24,229 --> 01:49:22,679

yeah we just need this short burn to get

2414

01:49:26,750 --> 01:49:24,239

to that lower altitude we start on the

2415

01:49:28,970 --> 01:49:26,760

r110 and we hear that we have a

2416

01:49:38,450 --> 01:49:28,980

pre-start with locks

2417

01:49:44,030 --> 01:49:41,570

and we have main engine start too

2418

01:49:45,890 --> 01:49:44,040

okay now we're 10 operating parameters

2419

01:49:49,729 --> 01:49:45,900

are looking good stabilizing very

2420

01:49:54,410 --> 01:49:52,250

and since our body rates are stabilizing

2421

01:49:58,970 --> 01:49:54,420

nicely following the burn and we have

2422

01:50:03,410 --> 01:50:01,669

so just like that the burn is over

2423

01:50:04,970 --> 01:50:03,420

parameters look good for the second burn

2424

01:50:07,370 --> 01:50:04,980

as well

2425

01:50:09,050 --> 01:50:07,380

I just want to point out that this is a

2426

01:50:10,609 --> 01:50:09,060

unique view that we're looking at in

2427

01:50:12,590 --> 01:50:10,619

terms of an animation you don't often

2428

01:50:15,290 --> 01:50:12,600

see a second stage pointed down 100

2429

01:50:16,970 --> 01:50:15,300

that's correct and doing a burn that's

2430

01:50:18,890 --> 01:50:16,980

correct and in this case we're doing

2431

01:50:20,510 --> 01:50:18,900

that for a specific reason right so that

2432

01:50:22,729 --> 01:50:20,520

lofted can get in the position they need

2433

01:50:24,830 --> 01:50:22,739

to do their work and then get ready to

2434

01:50:27,950 --> 01:50:24,840

uh separate it we'll see that a little

2435

01:50:29,689 --> 01:50:27,960

bit later as they demonstrate that work

2436

01:50:32,870 --> 01:50:29,699

now let's take a look at some video that

2437

01:50:36,169 --> 01:50:32,880

we just downlinked a few moments ago

2438

01:50:41,629 --> 01:50:36,179

this was of a huge milestone the release

2439

01:50:45,109 --> 01:50:41,639

of jps2 there it goes from the Centaur

2440

01:50:46,729 --> 01:50:45,119

upper stage off into space

2441

01:50:48,169 --> 01:50:46,739

and you can see in that picture right

2442

01:50:51,350 --> 01:50:48,179

there Daryl not only is day two

2443

01:50:53,570 --> 01:50:51,360

separating from the stack but that whole

2444

01:50:56,090 --> 01:50:53,580

stack of metal that we see that it

2445

01:50:59,030 --> 01:50:56,100

separated from lofted is inside that

2446

01:51:01,609 --> 01:50:59,040

those adapter cones and protected right

2447

01:51:05,149 --> 01:51:01,619

now and that's a beautiful sight to see

2448

01:51:07,189 --> 01:51:05,159

Jay to move away from from the Centaur

2449

01:51:09,350 --> 01:51:07,199

as we get ready for this next portion of

2450

01:51:13,010 --> 01:51:09,360

this Mission with lofted and there you

2451

01:51:16,129 --> 01:51:13,020

see Centaur in its deorbit burn

2452

01:51:18,649 --> 01:51:16,139

to get to the right trajectory to

2453

01:51:20,450 --> 01:51:18,659

drop off lofted which is at the bottom

2454

01:51:24,229 --> 01:51:20,460

end of the centaur

2455

01:51:26,209 --> 01:51:24,239

and its payload launch adapter

2456

01:51:28,790 --> 01:51:26,219

when that's released and the cover comes

2457

01:51:33,290 --> 01:51:30,470

and seeing the Centaur body rate

2458

01:51:34,609 --> 01:51:33,300

stabilizes as it reaches the PTC roll

2459

01:51:36,709 --> 01:51:34,619

rate

2460

01:51:39,109 --> 01:51:36,719

we'll get some inflation with the very

2461

01:51:41,149 --> 01:51:39,119

good performance of RCs

2462

01:51:44,629 --> 01:51:41,159

and very stable tank pressures and

2463

01:51:50,169 --> 01:51:47,810

yeah so as we see this Daryl Centaur is

2464

01:51:54,290 --> 01:51:50,179

moving into position to get ready for uh

2465

01:51:56,510 --> 01:51:54,300

lofted's work and separation and then as

2466

01:51:59,870 --> 01:51:56,520

you mentioned uh once lofted separates

2467

01:52:03,290 --> 01:51:59,880

uh Centaur will do a third burn getting

2468

01:52:05,870 --> 01:52:03,300

ready for a d orbit and we'll continue

2469

01:52:08,030 --> 01:52:05,880

the mission that way as lofted then

2470

01:52:10,550 --> 01:52:08,040

heads into the atmosphere and

2471

01:52:13,910 --> 01:52:10,560

demonstrates its technology for

2472

01:52:16,189 --> 01:52:13,920

Splashdown later this morning we have

2473

01:52:20,570 --> 01:52:16,199

confirmation that indeed the solar

2474

01:52:23,629 --> 01:52:20,580

arrays for jpss2 have been deployed

2475

01:52:28,609 --> 01:52:23,639

another great milestone reached with the

2476

01:52:32,390 --> 01:52:30,470

besides a little bit of a launch delay

2477

01:52:34,129 --> 01:52:32,400

at the beginning everything's going

2478

01:52:37,010 --> 01:52:34,139

really well yeah everything going

2479

01:52:40,669 --> 01:52:37,020

nominal everything's going great for

2480

01:52:43,189 --> 01:52:40,679

this Mission and um uh things are

2481

01:52:45,770 --> 01:52:43,199

looking good for the J2 satellite as we

2482

01:52:48,770 --> 01:52:45,780

said acquisition signal solar raid

2483

01:52:51,050 --> 01:52:48,780

deployment the team is very happy things

2484

01:53:09,850 --> 01:52:51,060

are looking really well for the J2

2485

01:53:15,590 --> 01:53:13,070

and so now with uh and coming up on the

2486

01:53:17,270 --> 01:53:15,600

Centaur in position initial review for

2487

01:53:19,609 --> 01:53:17,280

that third burn we want to indicating

2488

01:53:21,290 --> 01:53:19,619

we're uh say goodbye and thank you to

2489

01:53:23,689 --> 01:53:21,300

Mick Wolfman launch Services Program

2490

01:53:26,090 --> 01:53:23,699

engineer for riding shotgun and uh

2491

01:53:27,890 --> 01:53:26,100

giving us your Insight and commentary uh

2492

01:53:29,570 --> 01:53:27,900

you spent a lot of time with Atlas five

2493

01:53:31,970 --> 01:53:29,580

you know it well and uh you were able to

2494

01:53:33,350 --> 01:53:31,980

walk us through uh the early issue and

2495

01:53:34,790 --> 01:53:33,360

uh we really appreciate it yeah

2496

01:53:36,649 --> 01:53:34,800

appreciate it Daryl it's always fun to

2497

01:53:38,689 --> 01:53:36,659

be with you guys uh talking at launch

2498

01:53:41,330 --> 01:53:38,699

especially this last Atlas five from

2499

01:53:43,430 --> 01:53:41,340

slick 3 has a special place for me uh

2500

01:53:44,750 --> 01:53:43,440

having started my career here and uh I

2501
01:53:46,850 --> 01:53:44,760
always enjoy doing commentary with you

2502
01:53:48,890 --> 01:53:46,860
my friend so thanks a lot and enjoy the

2503
01:53:50,810 --> 01:53:48,900
rest of the mission same here Mick and I

2504
01:53:52,910 --> 01:53:50,820
appreciate the words and thank you again

2505
01:53:55,490 --> 01:53:52,920
and so with that we'll send it back to

2506
01:53:58,010 --> 01:53:55,500
Megan and continue tracking the Centaur

2507
01:53:59,209 --> 01:53:58,020
and Lofton I love having Mick on the

2508
01:54:01,070 --> 01:53:59,219
broadcast it's always good to have him

2509
01:54:01,930 --> 01:54:01,080
you Daryl you're okay sometimes I like

2510
01:54:04,370 --> 01:54:01,940
you

2511
01:54:05,990 --> 01:54:04,380
well as we weight lofted here's a closer

2512
01:54:09,350 --> 01:54:06,000
look at the new inflatable heat shield

2513
01:54:11,629 --> 01:54:09,360

by the Numbers it weighs 2 400 pounds

2514

01:54:14,510 --> 01:54:11,639

and that's about the same size as an

2515

01:54:16,609 --> 01:54:14,520

adult male crocodile it's about 20 feet

2516

01:54:19,129 --> 01:54:16,619

across that's the size of one shipping

2517

01:54:23,510 --> 01:54:19,139

container it is made up of inflatable

2518

01:54:26,209 --> 01:54:23,520

rings 15 times stronger than steel and

2519

01:54:31,010 --> 01:54:26,219

can withstand temperatures in excess of

2520

01:54:32,209 --> 01:54:31,020

2 900 degrees Fahrenheit that is hot and

2521

01:54:34,669 --> 01:54:32,219

as Mick and Daryl have been talking

2522

01:54:37,790 --> 01:54:34,679

about today was the last Atlas 5 rocket

2523

01:54:42,229 --> 01:54:37,800

launch from the West Coast as Ula gets

2524

01:54:46,129 --> 01:54:42,239

closer to launching Vulcan Rockets from

2525

01:54:48,530 --> 01:54:46,139

here in 2023. Atlas 5 has been America's

2526
01:54:50,330 --> 01:54:48,540
longest servicing active rocket and part

2527
01:54:53,090 --> 01:54:50,340
of the launch Services Program for more

2528
01:54:55,129 --> 01:54:53,100
than a decade as we mark 100 launches

2529
01:54:56,629 --> 01:54:55,139
with LSP here's how the team describes

2530
01:54:59,240 --> 01:54:56,639
working together through all those

2531
01:55:09,040 --> 01:54:59,250
successful missions

2532
01:55:13,930 --> 01:55:09,050
[Music]

2533
01:55:18,410 --> 01:55:16,550
it's been said many times I'm not the

2534
01:55:20,810 --> 01:55:18,420
first won't be the last but we really

2535
01:55:23,689 --> 01:55:20,820
consider LSP to be a family

2536
01:55:26,030 --> 01:55:23,699
and by being kind of small and flexible

2537
01:55:29,629 --> 01:55:26,040
and agile we really have grown

2538
01:55:32,209 --> 01:55:29,639

incredibly tight over the uh now 24

2539

01:55:35,629 --> 01:55:32,219

years that we've been a program working

2540

01:55:38,330 --> 01:55:35,639

with LSP is working with family it's not

2541

01:55:40,669 --> 01:55:38,340

even like family is family there's a lot

2542

01:55:42,530 --> 01:55:40,679

of stress and the jobs that we have we

2543

01:55:43,970 --> 01:55:42,540

are trying to make sure that a

2544

01:55:46,490 --> 01:55:43,980

spacecraft gets launched successfully

2545

01:55:47,689 --> 01:55:46,500

where it needs to go for people who have

2546

01:55:49,970 --> 01:55:47,699

worked on it you know their whole

2547

01:55:51,709 --> 01:55:49,980

lifetimes and so that's a lot of

2548

01:55:53,570 --> 01:55:51,719

pressure on the people in the

2549

01:55:55,430 --> 01:55:53,580

organization and so when you accomplish

2550

01:55:58,129 --> 01:55:55,440

that launch you know you've done it

2551
01:56:00,109 --> 01:55:58,139
together as a team and so we all come

2552
01:56:01,970 --> 01:56:00,119
together like a family to solve the

2553
01:56:03,649 --> 01:56:01,980
problems and to get the mission done and

2554
01:56:07,250 --> 01:56:03,659
we're all working to achieve the same

2555
01:56:08,930 --> 01:56:07,260
goal the one thing I love about it is we

2556
01:56:11,270 --> 01:56:08,940
make each other better

2557
01:56:14,330 --> 01:56:11,280
it's not just about the launch day but

2558
01:56:17,149 --> 01:56:14,340
the little things that we do all day

2559
01:56:21,050 --> 01:56:17,159
every day that make the workplace

2560
01:56:23,990 --> 01:56:21,060
enjoyable I actually got hired on during

2561
01:56:26,270 --> 01:56:24,000
the pandemic and even though I was not

2562
01:56:28,189 --> 01:56:26,280
meeting people like I normally would I

2563
01:56:30,890 --> 01:56:28,199

got to experience that family atmosphere

2564

01:56:32,629 --> 01:56:30,900

even virtually and so I think it's

2565

01:56:35,330 --> 01:56:32,639

something that really it's it's woven

2566

01:56:38,330 --> 01:56:35,340

throughout the fabric of the program

2567

01:56:41,149 --> 01:56:38,340

and so there's a culture within LSP

2568

01:56:42,649 --> 01:56:41,159

where people don't have to look behind

2569

01:56:44,209 --> 01:56:42,659

their back afraid that someone's going

2570

01:56:47,030 --> 01:56:44,219

to step on their back to get to where

2571

01:56:49,370 --> 01:56:47,040

they want to go but instead

2572

01:56:51,590 --> 01:56:49,380

there are people who have your back and

2573

01:56:53,570 --> 01:56:51,600

are pushing you forward so that you can

2574

01:56:55,430 --> 01:56:53,580

be successful and so the program can be

2575

01:56:57,530 --> 01:56:55,440

successful and so that's where that

2576

01:57:00,050 --> 01:56:57,540

family atmosphere comes from it's talked

2577

01:57:01,729 --> 01:57:00,060

about but it's not just a saying it's a

2578

01:57:05,209 --> 01:57:01,739

lifestyle and so it's really cool to be

2579

01:57:09,470 --> 01:57:07,669

often project has managed and funded by

2580

01:57:11,090 --> 01:57:09,480

NASA's space technology Mission

2581

01:57:13,129 --> 01:57:11,100

directorate I got to speak with

2582

01:57:15,649 --> 01:57:13,139

technology demonstrations director Trudy

2583

01:57:19,729 --> 01:57:17,330

so Trudy tell me about the space

2584

01:57:21,410 --> 01:57:19,739

technology Mission directorate and why

2585

01:57:23,689 --> 01:57:21,420

testing an inflatable heat shield was so

2586

01:57:26,330 --> 01:57:23,699

important to you guys so so Megan in

2587

01:57:28,970 --> 01:57:26,340

space technology we say often technology

2588

01:57:31,669 --> 01:57:28,980

drives exploration and we don't just say

2589

01:57:33,589 --> 01:57:31,679

that because it's a fun motto or a cute

2590

01:57:36,169 --> 01:57:33,599

catchphrase we really say it because we

2591

01:57:38,030 --> 01:57:36,179

mean it we are looking to invest in

2592

01:57:39,649 --> 01:57:38,040

technologies that will enable future

2593

01:57:41,990 --> 01:57:39,659

missions we have a lot of planning on

2594

01:57:44,209 --> 01:57:42,000

the books right now and the Moon to Mars

2595

01:57:46,430 --> 01:57:44,219

objectives for Missions that are really

2596

01:57:50,689 --> 01:57:46,440

just in you know on paper at this point

2597

01:57:52,070 --> 01:57:50,699

but without missions like Loft did we're

2598

01:57:54,709 --> 01:57:52,080

not going to get there we need these are

2599

01:57:56,209 --> 01:57:54,719

enabling Technologies so at a broad

2600

01:57:58,910 --> 01:57:56,219

level we're looking to enable those

2601
01:58:01,729 --> 01:57:58,920
future missions that that we need to get

2602
01:58:03,589 --> 01:58:01,739
done but then in a more basic sense

2603
01:58:05,030 --> 01:58:03,599
we're looking just to see does the

2604
01:58:06,709 --> 01:58:05,040
technology work it's the first time

2605
01:58:08,330 --> 01:58:06,719
we're putting it together at six meters

2606
01:58:09,649 --> 01:58:08,340
which is about 20 feet

2607
01:58:11,510 --> 01:58:09,659
um we're gonna you know put it through

2608
01:58:13,310 --> 01:58:11,520
through atmosphere this case the Earth's

2609
01:58:15,589 --> 01:58:13,320
atmosphere and Technology demonstrations

2610
01:58:18,169 --> 01:58:15,599
we put everything we can together at a

2611
01:58:19,850 --> 01:58:18,179
system level we test as much as we

2612
01:58:21,290 --> 01:58:19,860
possibly can on the ground but at some

2613
01:58:22,550 --> 01:58:21,300

point you have to put it in the

2614

01:58:24,890 --> 01:58:22,560

environment in which it's supposed to

2615

01:58:26,390 --> 01:58:24,900

operate and so when this gets

2616

01:58:27,709 --> 01:58:26,400

demonstrated you could think of the

2617

01:58:29,870 --> 01:58:27,719

Earth's atmosphere as our giant test

2618

01:58:31,430 --> 01:58:29,880

chamber to be able to do that yeah so

2619

01:58:33,169 --> 01:58:31,440

let's talk a little bit more about those

2620

01:58:36,050 --> 01:58:33,179

future missions that this could enable

2621

01:58:37,970 --> 01:58:36,060

how could NASA use this technology for

2622

01:58:41,810 --> 01:58:37,980

us to do things that we have yet to

2623

01:58:43,129 --> 01:58:41,820

imagine sure so this technology is in

2624

01:58:46,010 --> 01:58:43,139

the category of what we call entry

2625

01:58:49,129 --> 01:58:46,020

descent Landing it'll enable us to land

2626

01:58:52,010 --> 01:58:49,139

larger payloads than ever before

2627

01:58:54,830 --> 01:58:52,020

um and and so for example you need an

2628

01:58:56,930 --> 01:58:54,840

atmosphere so so missions to Mars uh

2629

01:58:59,390 --> 01:58:56,940

Venus Titan the the largest moon of

2630

01:59:01,070 --> 01:58:59,400

Saturn become possibilities for us but

2631

01:59:03,050 --> 01:59:01,080

much larger payloads we could actually

2632

01:59:04,850 --> 01:59:03,060

land at higher elevations for example on

2633

01:59:05,750 --> 01:59:04,860

Mars than before with our robotic

2634

01:59:07,430 --> 01:59:05,760

missions

2635

01:59:09,950 --> 01:59:07,440

um because it can decelerate faster so

2636

01:59:11,450 --> 01:59:09,960

it opens up a whole host of

2637

01:59:13,250 --> 01:59:11,460

possibilities for us okay so

2638

01:59:15,169 --> 01:59:13,260

possibilities for NASA what about our

2639

01:59:16,609 --> 01:59:15,179

our commercial companies that we often

2640

01:59:18,109 --> 01:59:16,619

work with yeah so I'll just mention

2641

01:59:20,450 --> 01:59:18,119

we've enjoyed a lot of really great

2642

01:59:21,890 --> 01:59:20,460

Partnerships on lofted and I know you

2643

01:59:26,089 --> 01:59:21,900

have other people that you're talking to

2644

01:59:27,290 --> 01:59:26,099

about that but you know jpss2 NOAA our

2645

01:59:29,030 --> 01:59:27,300

science Mission Front Mission

2646

01:59:30,350 --> 01:59:29,040

directorates friends have all been really

2647

01:59:32,270 --> 01:59:30,360

great with this collaboration with us

2648

01:59:35,390 --> 01:59:32,280

but most especially United launch

2649

01:59:37,010 --> 01:59:35,400

Alliance so Ula recognized that this

2650

01:59:39,290 --> 01:59:37,020

technology that we were working on could

2651
01:59:42,709 --> 01:59:39,300
benefit them and so they approached us

2652
01:59:44,450 --> 01:59:42,719
and they want to use it uh to bring back

2653
01:59:46,910 --> 01:59:44,460
the first stage engines for their Vulcan

2654
01:59:48,950 --> 01:59:46,920
rocket if they can do that once they

2655
01:59:50,689 --> 01:59:48,960
successfully do that that lowers the

2656
01:59:52,010 --> 01:59:50,699
cost of access to space it lowers the

2657
01:59:54,709 --> 01:59:52,020
cost of their launch vehicle which then

2658
01:59:56,330 --> 01:59:54,719
we can per we can purchase other

2659
01:59:58,250 --> 01:59:56,340
government organizations who purchase

2660
02:00:00,410 --> 01:59:58,260
launch of vehicle services can do the

2661
02:00:03,589 --> 02:00:00,420
same thing so it becomes a win for them

2662
02:00:05,030 --> 02:00:03,599
a win for us and frankly in technology

2663
02:00:06,649 --> 02:00:05,040

demonstrations we love it when a plan

2664

02:00:07,970 --> 02:00:06,659

like that comes together and it

2665

02:00:09,350 --> 02:00:07,980

certainly has in this case oh yeah

2666

02:00:10,490 --> 02:00:09,360

nothing better than a win-win situation

2667

02:00:11,750 --> 02:00:10,500

that's right that's right and that's

2668

02:00:14,330 --> 02:00:11,760

what's happened here Trudy thank you so

2669

02:00:16,490 --> 02:00:14,340

much thanks Megan nice to be here

2670

02:00:19,189 --> 02:00:16,500

heat shields have evolved over time

2671

02:00:21,109 --> 02:00:19,199

earlier spacecrafts had one time use

2672

02:00:23,629 --> 02:00:21,119

heat shields that charred from the

2673

02:00:25,490 --> 02:00:23,639

intense heat of re-entry space shuttles

2674

02:00:27,410 --> 02:00:25,500

were protected by heat resistant tiles

2675

02:00:29,270 --> 02:00:27,420

which could be reused if they weren't

2676
02:00:31,370 --> 02:00:29,280
damaged and now this morning's flight

2677
02:00:33,010 --> 02:00:31,380
test will demonstrate a flexible heat

2678
02:00:40,970 --> 02:00:33,020
shield that could as Trudy said

2679
02:00:44,930 --> 02:00:43,430
before a Cutting Edge technology like an

2680
02:00:47,089 --> 02:00:44,940
inflatable heat shield can be flight

2681
02:00:49,070 --> 02:00:47,099
tested a lot of work goes into building

2682
02:00:51,470 --> 02:00:49,080
assembling and testing all of the

2683
02:00:53,390 --> 02:00:51,480
components here's how low earth orbit

2684
02:00:56,270 --> 02:00:53,400
flight test of an inflatable decelerator

2685
02:00:58,430 --> 02:00:56,280
or lofted was readied for launch

2686
02:01:00,709 --> 02:00:58,440
the inflatable structure made up of Tori

2687
02:01:02,689 --> 02:01:00,719
or rings was built and put through

2688
02:01:04,729 --> 02:01:02,699

static load testing to ensure its

2689

02:01:07,189 --> 02:01:04,739

structural integrity

2690

02:01:08,990 --> 02:01:07,199

a payload adapter separation system was

2691

02:01:10,910 --> 02:01:09,000

developed and tested using air bearings

2692

02:01:13,189 --> 02:01:10,920

on a flat floor

2693

02:01:16,370 --> 02:01:13,199

like an air hockey table to simulate a

2694

02:01:17,990 --> 02:01:16,380

space-like environment at launch lofted

2695

02:01:20,450 --> 02:01:18,000

is packed inside the payload adapter

2696

02:01:23,149 --> 02:01:20,460

used to connect jpss2 to the rocket

2697

02:01:24,890 --> 02:01:23,159

after jpss2 separates the payload

2698

02:01:28,129 --> 02:01:24,900

adapter separation system will jettison

2699

02:01:32,930 --> 02:01:30,470

the inflation system designed to slowly

2700

02:01:34,790 --> 02:01:32,940

expand the AeroShell was tested using an

2701
02:01:36,530 --> 02:01:34,800
inflatable simulator that uses the same

2702
02:01:38,810 --> 02:01:36,540
amount of air as the flight Arrow shell

2703
02:01:40,729 --> 02:01:38,820
each inflation test was run as the

2704
02:01:42,290 --> 02:01:40,739
system would operate in flight this

2705
02:01:44,270 --> 02:01:42,300
procedure ensured the inflation system

2706
02:01:47,689 --> 02:01:44,280
will respond as intended during routine

2707
02:01:49,310 --> 02:01:47,699
operations and potential anomalies

2708
02:01:51,530 --> 02:01:49,320
the air show was integrated with the

2709
02:01:53,450 --> 02:01:51,540
rest of the re-entry vehicle the vehicle

2710
02:01:55,129 --> 02:01:53,460
is comprised of several stacked segments

2711
02:01:57,290 --> 02:01:55,139
that link the inflatable structure to

2712
02:01:59,689 --> 02:01:57,300
the inflation system flight Electronics

2713
02:02:00,950 --> 02:01:59,699

ejectable data recorder and parachute

2714

02:02:03,229 --> 02:02:00,960

system

2715

02:02:04,729 --> 02:02:03,239

a matchmate test verified that all the

2716

02:02:06,649 --> 02:02:04,739

hardware from both NASA and United

2717

02:02:09,050 --> 02:02:06,659

launch Alliance fit together and align

2718

02:02:12,370 --> 02:02:09,060

properly this also served as a rehearsal

2719

02:02:14,390 --> 02:02:12,380

for the final integration procedures

2720

02:02:16,310 --> 02:02:14,400

electromagnetic compatibility testing

2721

02:02:17,990 --> 02:02:16,320

ensures the spacecraft does not emit

2722

02:02:19,550 --> 02:02:18,000

radio frequencies that could interfere

2723

02:02:20,510 --> 02:02:19,560

with anything on the integrated launch

2724

02:02:22,609 --> 02:02:20,520

vehicle

2725

02:02:24,290 --> 02:02:22,619

and that lofted won't be harmed by any

2726

02:02:26,570 --> 02:02:24,300

electromagnetic radiation it may

2727

02:02:28,550 --> 02:02:26,580

experience during launch

2728

02:02:30,770 --> 02:02:28,560

a complete system test was conducted

2729

02:02:33,229 --> 02:02:30,780

inside a 60-foot vacuum sphere that can

2730

02:02:34,850 --> 02:02:33,239

simulate a space-like environment a full

2731

02:02:36,950 --> 02:02:34,860

test of the flight sequence was run

2732

02:02:39,470 --> 02:02:36,960

under vacuum exactly as it will execute

2733

02:02:41,450 --> 02:02:39,480

during the flight demonstration

2734

02:02:43,010 --> 02:02:41,460

once the inflatable AeroShell was

2735

02:02:44,870 --> 02:02:43,020

repacked its weight and center of

2736

02:02:46,550 --> 02:02:44,880

gravity were measured determining these

2737

02:02:48,410 --> 02:02:46,560

characteristics is important to ensure

2738

02:02:49,970 --> 02:02:48,420

the spacecraft will perform as expected

2739

02:02:52,310 --> 02:02:49,980

during flight

2740

02:02:54,050 --> 02:02:52,320

lofted also has an ejectable data module

2741

02:02:55,609 --> 02:02:54,060

that provides a redundant source of data

2742

02:02:57,950 --> 02:02:55,619

from the sensors and cameras on board

2743

02:02:59,629 --> 02:02:57,960

the EDM has undergone many functional

2744

02:03:01,430 --> 02:02:59,639

tests as well as a series of practice

2745

02:03:03,350 --> 02:03:01,440

recoveries

2746

02:03:05,689 --> 02:03:03,360

with lofted in its launch configuration

2747

02:03:07,310 --> 02:03:05,699

it was vibration tested to ensure no

2748

02:03:08,920 --> 02:03:07,320

damage will occur during the intense

2749

02:03:10,490 --> 02:03:08,930

launch and re-entry process

2750

02:03:12,830 --> 02:03:10,500

[Music]

2751

02:03:14,270 --> 02:03:12,840

lofted underwent one final test to

2752

02:03:16,129 --> 02:03:14,280

ensure it was fully functional before

2753

02:03:17,990 --> 02:03:16,139

being packed and shipped to Vandenberg

2754

02:03:19,230 --> 02:03:18,000

space force base its final destination

2755

02:03:24,649 --> 02:03:19,240

for launch

2756

02:03:28,310 --> 02:03:26,450

a lot of hard work definitely went into

2757

02:03:30,050 --> 02:03:28,320

this flight test and before this flight

2758

02:03:31,910 --> 02:03:30,060

test heat shields could only be as big

2759

02:03:33,830 --> 02:03:31,920

as the size of the launch vehicle but as

2760

02:03:36,709 --> 02:03:33,840

you just heard that might not be the

2761

02:03:38,510 --> 02:03:36,719

case anymore NASA's Angelique Herring is

2762

02:03:45,290 --> 02:03:38,520

live at Langley with an expert on the

2763

02:03:49,970 --> 02:03:47,750

yes I'm here outside of flight Mission

2764

02:03:51,470 --> 02:03:49,980

support center with Stephen Tobin the

2765

02:03:53,870 --> 02:03:51,480

lead thermal engineer from The Loft

2766

02:03:55,370 --> 02:03:53,880

demonstration Stephen it's so great to

2767

02:03:57,530 --> 02:03:55,380

have you here this morning good morning

2768

02:03:59,089 --> 02:03:57,540

Anjali thanks for checking in absolutely

2769

02:04:01,010 --> 02:03:59,099

so Steve and I know that we're still a

2770

02:04:03,709 --> 02:04:01,020

few minutes away from three entry

2771

02:04:05,149 --> 02:04:03,719

vehicle actually turning on what is the

2772

02:04:07,370 --> 02:04:05,159

team going to be doing here at flight

2773

02:04:08,870 --> 02:04:07,380

Mission support after that moment

2774

02:04:10,790 --> 02:04:08,880

so we're going to be on our consoles

2775

02:04:13,189 --> 02:04:10,800

looking at sensor data that's coming

2776
02:04:16,790 --> 02:04:13,199
down transmitted from lofted near real

2777
02:04:19,070 --> 02:04:16,800
time we have all kinds of sensors all

2778
02:04:20,689 --> 02:04:19,080
over the lofted AeroShell and many of

2779
02:04:22,250 --> 02:04:20,699
them are temperature sensors that are

2780
02:04:24,950 --> 02:04:22,260
embedded within the layers of the

2781
02:04:26,629 --> 02:04:24,960
thermal protection system we also have

2782
02:04:28,430 --> 02:04:26,639
heat rate and pressure sensors on the

2783
02:04:31,189 --> 02:04:28,440
nose of the vehicle so I'm going to be

2784
02:04:33,589 --> 02:04:31,199
looking at a critical subset of that

2785
02:04:36,109 --> 02:04:33,599
sensor data and Reporting out to the

2786
02:04:37,850 --> 02:04:36,119
team on the thermal response of the

2787
02:04:39,950 --> 02:04:37,860
AeroShell and also comparing to our

2788
02:04:41,570 --> 02:04:39,960

thermal models predictions that'll be

2789

02:04:43,669 --> 02:04:41,580

incredibly exciting there's a lot of

2790

02:04:46,129 --> 02:04:43,679

data going on there how are you going to

2791

02:04:48,410 --> 02:04:46,139

use that in order to determine the

2792

02:04:50,750 --> 02:04:48,420

success of today's demonstration

2793

02:04:52,970 --> 02:04:50,760

well I'm going to be looking in

2794

02:04:55,550 --> 02:04:52,980

particular at the temperature sensor

2795

02:04:57,290 --> 02:04:55,560

data in between the flexible thermal

2796

02:04:58,970 --> 02:04:57,300

protection system and the inflatable

2797

02:05:01,910 --> 02:04:58,980

structure so we call that the interface

2798

02:05:03,169 --> 02:05:01,920

and if it's okay I can show you a sample

2799

02:05:05,810 --> 02:05:03,179

of the flexible thermal protection

2800

02:05:06,830 --> 02:05:05,820

system absolutely just to run you

2801
02:05:08,990 --> 02:05:06,840
through the layers and give you an idea

2802
02:05:11,450 --> 02:05:09,000
of what I'm looking at but this is the

2803
02:05:13,550 --> 02:05:11,460
actual half inch of material that is

2804
02:05:15,950 --> 02:05:13,560
protecting the inflatable structure from

2805
02:05:17,770 --> 02:05:15,960
the heat of reentry this is a sample of

2806
02:05:21,010 --> 02:05:17,780
the inflatable structure skin

2807
02:05:24,290 --> 02:05:21,020
so first of all we have a very strong

2808
02:05:26,689 --> 02:05:24,300
ceramic woven ceramic outer fabric that

2809
02:05:28,669 --> 02:05:26,699
protects the softer underlying

2810
02:05:32,510 --> 02:05:28,679
insulation layers from direct

2811
02:05:33,290 --> 02:05:32,520
aerodynamic Heating and Shear forces and

2812
02:05:36,649 --> 02:05:33,300
then

2813
02:05:39,169 --> 02:05:36,659

we have a carbonaceous and polymer fiber

2814

02:05:41,689 --> 02:05:39,179

insulation stack and that's that softer

2815

02:05:44,990 --> 02:05:41,699

insulation that really resists the heat

2816

02:05:46,370 --> 02:05:45,000

soak back through the layers and to the

2817

02:05:48,709 --> 02:05:46,380

inflatable structure

2818

02:05:52,430 --> 02:05:48,719

and then finally we have our impermeable

2819

02:05:55,129 --> 02:05:52,440

gas barrier and this is uh preventing

2820

02:05:57,229 --> 02:05:55,139

hot gas from flowing through those

2821

02:05:59,330 --> 02:05:57,239

porous insulators and directly impinging

2822

02:06:01,070 --> 02:05:59,340

onto the inflatable structure and this

2823

02:06:02,570 --> 02:06:01,080

interface between the gas barrier and

2824

02:06:03,770 --> 02:06:02,580

the inflatable structure is really the

2825

02:06:06,010 --> 02:06:03,780

most critical thermally because it's

2826
02:06:08,209 --> 02:06:06,020
where it'll reach a maximum temperature

2827
02:06:10,250 --> 02:06:08,219
on the inflatable structure so I'm going

2828
02:06:12,050 --> 02:06:10,260
to be looking at the sensor data here at

2829
02:06:14,209 --> 02:06:12,060
this interface and looking to see where

2830
02:06:16,729 --> 02:06:14,219
it Peaks up and then starts to Trend

2831
02:06:18,649 --> 02:06:16,739
down once we see that and we also see

2832
02:06:21,050 --> 02:06:18,659
that the inflatable structure is holding

2833
02:06:23,270 --> 02:06:21,060
pressure anomaly then that is the

2834
02:06:25,910 --> 02:06:23,280
indication we need to see that the

2835
02:06:27,950 --> 02:06:25,920
lofted RV re-entry vehicle has indeed

2836
02:06:29,990 --> 02:06:27,960
survived the extreme Heating and

2837
02:06:32,089 --> 02:06:30,000
structural loading of re-entry and what

2838
02:06:33,649 --> 02:06:32,099

an exciting moment that'll be can't wait

2839

02:06:35,030 --> 02:06:33,659

with that we'll head back over to you

2840

02:06:37,189 --> 02:06:35,040

Megan

2841

02:06:40,010 --> 02:06:37,199

nearly five minutes away from testing

2842

02:06:42,350 --> 02:06:40,020

NASA's new inflatable heat shield Daryl

2843

02:06:44,270 --> 02:06:42,360

nail is now joined by NASA engineer Sean

2844

02:06:46,370 --> 02:06:44,280

Hancock to provide live commentary about

2845

02:06:48,290 --> 02:06:46,380

this portion of today yeah thank you

2846

02:06:50,810 --> 02:06:48,300

very much Megan and we welcome in as you

2847

02:06:53,870 --> 02:06:50,820

mentioned Sean Hancock the uh payload

2848

02:06:55,790 --> 02:06:53,880

adapter uh lost a payload adapter lead

2849

02:06:58,250 --> 02:06:55,800

engineer we appreciate you being here

2850

02:07:01,430 --> 02:06:58,260

sharing your expertise with us you'll be

2851
02:07:04,729 --> 02:07:01,440
here for the duration of the lofted tech

2852
02:07:07,490 --> 02:07:04,739
demonstration and this is an exciting

2853
02:07:09,229 --> 02:07:07,500
Mission yeah this is a this is a first

2854
02:07:12,109 --> 02:07:09,239
of its kind it's the first orbital

2855
02:07:14,689 --> 02:07:12,119
flight for uh for a hiad so we're super

2856
02:07:17,450 --> 02:07:14,699
excited we're uh we're really glad to be

2857
02:07:19,910 --> 02:07:17,460
in space we are looking right now for

2858
02:07:23,990 --> 02:07:19,920
the third burn uh Sean the main engine

2859
02:07:26,270 --> 02:07:24,000
start number three uh for uh the Centaur

2860
02:07:29,149 --> 02:07:26,280
which is going to put that lofted return

2861
02:07:32,270 --> 02:07:29,159
vehicle in the proper orientation there

2862
02:07:34,970 --> 02:07:32,280
we see a graphical animation that's

2863
02:07:38,089 --> 02:07:34,980

based on real-time data coming from UL

2864

02:07:40,729 --> 02:07:38,099

LA's Telemetry stream that shows us the

2865

02:07:42,169 --> 02:07:40,739

orientation currently of Centaur and

2866

02:07:44,209 --> 02:07:42,179

we're going to have a quick about a

2867

02:07:47,450 --> 02:07:44,219

minute remaining in the coast prior to

2868

02:07:50,390 --> 02:07:47,460

burn three yeah so the centaur

2869

02:07:52,370 --> 02:07:50,400

continuing to see very stable Centaur uh

2870

02:07:53,689 --> 02:07:52,380

body rates near null and preparation for

2871

02:07:55,790 --> 02:07:53,699

the burn

2872

02:07:57,830 --> 02:07:55,800

and good performance across all other

2873

02:07:59,570 --> 02:07:57,840

Centaur systems as well

2874

02:08:01,129 --> 02:07:59,580

yeah go ahead Sean okay yeah so the

2875

02:08:02,870 --> 02:08:01,139

Centaur is going to turn main engine

2876

02:08:04,910 --> 02:08:02,880

forward it's going to conduct a very

2877

02:08:06,430 --> 02:08:04,920

short burn that's going to slow the

2878

02:08:08,990 --> 02:08:06,440

Centaur and the spacecraft down

2879

02:08:11,390 --> 02:08:09,000

sufficiently and that will allow us to

2880

02:08:12,770 --> 02:08:11,400

be on a trajectory where we re-enter

2881

02:08:14,330 --> 02:08:12,780

Earth's atmosphere and we'll start our

2882

02:08:16,550 --> 02:08:14,340

start our mission

2883

02:08:18,350 --> 02:08:16,560

and we are just a little more than a

2884

02:08:20,870 --> 02:08:18,360

minute away from Main engine start

2885

02:08:21,890 --> 02:08:20,880

number three this will be a very brief

2886

02:08:25,310 --> 02:08:21,900

burn

2887

02:08:28,430 --> 02:08:25,320

approximately 17 seconds yeah pu Motor

2888

02:08:30,770 --> 02:08:28,440

Performance uh pre-burns lose again

2889

02:08:34,430 --> 02:08:30,780

you can see lofted it is contained

2890

02:08:36,169 --> 02:08:34,440

within Sean your payload adapter at the

2891

02:08:37,490 --> 02:08:36,179

end of the rocket represented in the

2892

02:08:38,629 --> 02:08:37,500

animation

2893

02:08:40,910 --> 02:08:38,639

um

2894

02:08:45,950 --> 02:08:40,920

again getting Centaur into that third

2895

02:08:47,930 --> 02:08:45,960

third will help de-orbit uh the payload

2896

02:08:50,270 --> 02:08:47,940

and the centaur

2897

02:08:53,270 --> 02:08:50,280

and this is uh kicking off what is a

2898

02:08:54,470 --> 02:08:53,280

really exciting Mission John Lawson

2899

02:08:56,750 --> 02:08:54,480

stands for

2900

02:09:00,109 --> 02:08:56,760

low earth orbit flight test of an

2901

02:09:02,510 --> 02:09:00,119

inflatable decelerator

2902

02:09:04,550 --> 02:09:02,520

yeah so the uh the lofted payload we

2903

02:09:06,350 --> 02:09:04,560

we're residing inside the payload

2904

02:09:07,850 --> 02:09:06,360

adapter and we're going to conduct this

2905

02:09:10,129 --> 02:09:07,860

reorbit burn

2906

02:09:12,350 --> 02:09:10,139

right now there we go there's the main

2907

02:09:14,990 --> 02:09:12,360

engine has come up to a very stable

2908

02:09:17,030 --> 02:09:15,000

operating pressures

2909

02:09:21,350 --> 02:09:17,040

that de-orbit burn just a few seconds

2910

02:09:21,360 --> 02:09:26,030

and standing by for Mikko shortly

2911

02:09:29,930 --> 02:09:27,830

let's finish your thought in a second

2912

02:09:34,669 --> 02:09:29,940

Sean as we finish off this burn oh I'm

2913

02:09:41,570 --> 02:09:37,250

and Arlington shut down parameters look

2914

02:09:47,149 --> 02:09:43,250

all right main engine cut off for that

2915

02:09:49,189 --> 02:09:47,159

third burn uh successful third burn

2916

02:09:52,070 --> 02:09:49,199

testing this entire body rates respond

2917

02:09:54,229 --> 02:09:52,080

is it reorients itself for the payload

2918

02:09:56,629 --> 02:09:54,239

adapter jettison attitude

2919

02:09:58,370 --> 02:09:56,639

and he mentioned the payload adapter I

2920

02:10:00,589 --> 02:09:58,380

want to talk really quick about it

2921

02:10:02,209 --> 02:10:00,599

that's your area of expertise Sean and

2922

02:10:05,030 --> 02:10:02,219

uh we have a couple pictures to help

2923

02:10:06,589 --> 02:10:05,040

explain uh that adapter that we see in

2924

02:10:08,689 --> 02:10:06,599

the animation

2925

02:10:10,310 --> 02:10:08,699

um you take lofted

2926

02:10:13,609 --> 02:10:10,320

and you

2927

02:10:16,550 --> 02:10:13,619

basically pack it extremely tightly into

2928

02:10:19,729 --> 02:10:16,560

that payload adapter here it is fully

2929

02:10:23,109 --> 02:10:19,739

inflated right you can get the scale of

2930

02:10:26,510 --> 02:10:23,119

this six meter AeroShell

2931

02:10:29,470 --> 02:10:26,520

underneath uh you know on top of the the

2932

02:10:32,570 --> 02:10:29,480

text that you see there but when you

2933

02:10:34,609 --> 02:10:32,580

deflate it and put it into that adapter

2934

02:10:36,770 --> 02:10:34,619

here's what it looks like let's take a

2935

02:10:38,089 --> 02:10:36,780

look now there's your payload adapter

2936

02:10:40,310 --> 02:10:38,099

this is the part that you've worked on

2937

02:10:43,910 --> 02:10:40,320

you're the lead engineer for going over

2938

02:10:46,669 --> 02:10:43,920

top of lofted completely compressed into

2939

02:10:48,890 --> 02:10:46,679

its size for flight

2940

02:10:51,890 --> 02:10:48,900

yeah so just to put some numbers to it

2941

02:10:54,050 --> 02:10:51,900

the the fully inflated AeroShell is 20

2942

02:10:56,510 --> 02:10:54,060

feet in diameter uh when we get it

2943

02:10:58,609 --> 02:10:56,520

packed and stowed for launch we're down

2944

02:11:00,830 --> 02:10:58,619

to 52 inches or just slightly above four

2945

02:11:04,129 --> 02:11:00,840

feet in diameter and the AeroShell

2946

02:11:06,169 --> 02:11:04,139

itself is only about 18 inches tall and

2947

02:11:07,910 --> 02:11:06,179

we we're down in a little very small

2948

02:11:10,070 --> 02:11:07,920

package that allows us to fit inside

2949

02:11:12,410 --> 02:11:10,080

that payload adapter directly below

2950

02:11:14,330 --> 02:11:12,420

jpss2 now that adapter going to jettison

2951
02:11:16,370 --> 02:11:14,340
here in just about a minute but I want

2952
02:11:18,770 --> 02:11:16,380
to just show you this this is the jps2

2953
02:11:20,570 --> 02:11:18,780
JPS S2 satellite that went on top of

2954
02:11:24,050 --> 02:11:20,580
your payload adapter which it was

2955
02:11:27,470 --> 02:11:24,060
critical to have that in order to uh

2956
02:11:30,229 --> 02:11:27,480
get jps2 the primary spacecraft on this

2957
02:11:32,030 --> 02:11:30,239
mission in its proper orbit and then

2958
02:11:34,669 --> 02:11:32,040
allow you guys to do your Tech

2959
02:11:36,410 --> 02:11:34,679
demonstration all right we've got uh our

2960
02:11:38,870 --> 02:11:36,420
assistant launch manager for launch

2961
02:11:40,790 --> 02:11:38,880
Services Program Tim Tim Dunn standing

2962
02:11:42,950 --> 02:11:40,800
by with Megan with some comments about

2963
02:11:46,250 --> 02:11:42,960

the completion of the jpss2 mission

2964

02:11:49,189 --> 02:11:46,260

Megan yeah so let's talk with Tim Dunn

2965

02:11:50,930 --> 02:11:49,199

here uh the LSP launch director Tim Dunn

2966

02:11:52,970 --> 02:11:50,940

who assisted uh with the launch today

2967

02:11:55,310 --> 02:11:52,980

you know you we confirmed acquisition of

2968

02:11:57,109 --> 02:11:55,320

signal so that marks the 100th

2969

02:11:58,790 --> 02:11:57,119

successful mission of LSP how are you

2970

02:12:01,490 --> 02:11:58,800

feeling about that oh I'm feeling great

2971

02:12:04,310 --> 02:12:01,500

and Megan the team is feeling just

2972

02:12:07,430 --> 02:12:04,320

ecstatic great we have our 100th launch

2973

02:12:09,770 --> 02:12:07,440

under our belt uh successful not to

2974

02:12:12,649 --> 02:12:09,780

mention we did confirm solar array

2975

02:12:14,990 --> 02:12:12,659

deployment and we are already acquiring

2976

02:12:18,109 --> 02:12:15,000

the Sun and we're power positive on the

2977

02:12:20,089 --> 02:12:18,119

spacecraft so jpss2 is off to a great

2978

02:12:22,910 --> 02:12:20,099

start that's fantastic I want to know

2979

02:12:26,450 --> 02:12:22,920

how Omar Baez is feeling you know he has

2980

02:12:29,209 --> 02:12:26,460

been with LSP for 24 years he's about to

2981

02:12:31,430 --> 02:12:29,219

retire this was his last mission as the

2982

02:12:33,470 --> 02:12:31,440

the NASA launch manager right that is

2983

02:12:36,589 --> 02:12:33,480

correct yeah I backed Omar up on this

2984

02:12:39,709 --> 02:12:36,599

one and he went out in style uh with the

2985

02:12:42,589 --> 02:12:39,719

primary Mission uh and uh he's just he's

2986

02:12:44,990 --> 02:12:42,599

feeling great uh I leaned over to him

2987

02:12:46,250 --> 02:12:45,000

before I left console and I said Omar is

2988

02:12:49,609 --> 02:12:46,260

there anything you would like to tell

2989

02:12:53,330 --> 02:12:49,619

the NASA community and he just had the

2990

02:12:55,609 --> 02:12:53,340

biggest grin on his face uh so Omar's

2991

02:12:59,330 --> 02:12:55,619

done just amazing work here's some great

2992

02:13:01,550 --> 02:12:59,340

pictures of oh uh and I've been able to

2993

02:13:05,629 --> 02:13:01,560

work with him for the last 12 and a half

2994

02:13:10,310 --> 02:13:05,639

years and he's just amazing uh he knows

2995

02:13:12,410 --> 02:13:10,320

so much about what we do in LSP to mold

2996

02:13:15,109 --> 02:13:12,420

the launch Team and get us ready for

2997

02:13:17,209 --> 02:13:15,119

today days just like today and launching

2998

02:13:19,609 --> 02:13:17,219

these rockets and putting these very

2999

02:13:21,649 --> 02:13:19,619

critical spacecraft on orbit yeah you

3000

02:13:23,390 --> 02:13:21,659

know we do such important work here to

3001

02:13:26,149 --> 02:13:23,400

advance a lot of science so of course we

3002

02:13:28,010 --> 02:13:26,159

just saw JPS SS2 putting that into orbit

3003

02:13:31,189 --> 02:13:28,020

now we're about to transition into

3004

02:13:33,830 --> 02:13:31,199

lofted LSP has a role in that

3005

02:13:36,470 --> 02:13:33,840

so what we would call lofted a ride

3006

02:13:39,589 --> 02:13:36,480

share to the primary payload of jpss2

3007

02:13:42,050 --> 02:13:39,599

and our integration team was

3008

02:13:45,709 --> 02:13:42,060

instrumental in making sure all of the

3009

02:13:49,310 --> 02:13:45,719

launch requirements uh were satisfied to

3010

02:13:52,069 --> 02:13:49,320

safely integrate lofted alongside jpss2

3011

02:13:54,709 --> 02:13:52,079

making sure that we took care of J2

3012

02:13:56,810 --> 02:13:54,719

because it was the primary payload but

3013

02:13:59,390 --> 02:13:56,820

we also wanted to ensure that lofted

3014

02:14:01,490 --> 02:13:59,400

would have every

3015

02:14:03,290 --> 02:14:01,500

ounce of mission assurance that we could

3016

02:14:06,410 --> 02:14:03,300

provide to it and we're really looking

3017

02:14:08,390 --> 02:14:06,420

forward to the end of the mission with

3018

02:14:09,950 --> 02:14:08,400

lofted separation that's going to be

3019

02:14:13,069 --> 02:14:09,960

really exciting and real quick what's

3020

02:14:16,030 --> 02:14:13,079

next for LSP so what's next is the SWAT

3021

02:14:18,229 --> 02:14:16,040

Mission surface water ocean topography

3022

02:14:20,510 --> 02:14:18,239

really exciting International

3023

02:14:22,609 --> 02:14:20,520

collaboration Mission with the French

3024

02:14:25,790 --> 02:14:22,619

it's going to happen right here from

3025

02:14:28,609 --> 02:14:25,800

Vandenberg December 12th on a Falcon 9

3026

02:14:30,410 --> 02:14:28,619

rocket with our launch provider SpaceX

3027

02:14:32,089 --> 02:14:30,420

so we're very much looking forward to

3028

02:14:33,470 --> 02:14:32,099

that one that sounds Tim thank you so

3029

02:14:35,330 --> 02:14:33,480

much and I'll see you at SWAT all right

3030

02:14:37,250 --> 02:14:35,340

sounds good all right let's go back out

3031

02:14:39,470 --> 02:14:37,260

to Daryl and Sean for more updates on

3032

02:14:40,850 --> 02:14:39,480

lofted thank you very much back here at

3033

02:14:42,589 --> 02:14:40,860

the mission director Center we've had a

3034

02:14:45,350 --> 02:14:42,599

number of Milestones that have passed

3035

02:14:47,149 --> 02:14:45,360

through uh the lofted uh series of

3036

02:14:49,069 --> 02:14:47,159

events and a couple of them we want to

3037

02:14:51,950 --> 02:14:49,079

name those out or that payload adapter

3038

02:14:54,530 --> 02:14:51,960

it's been jettisoned uh the cover has

3039

02:14:57,589 --> 02:14:54,540

been released and Sean that image there

3040

02:14:59,990 --> 02:14:57,599

shows us that lofted has been inflated

3041

02:15:02,750 --> 02:15:00,000

yeah so the payload adapter separates

3042

02:15:05,030 --> 02:15:02,760

that releases uh some pyro inhibits that

3043

02:15:07,310 --> 02:15:05,040

allows us to remove a restraint cover

3044

02:15:08,870 --> 02:15:07,320

over the stowed AeroShell and then a

3045

02:15:11,390 --> 02:15:08,880

minute later we start inflating

3046

02:15:13,850 --> 02:15:11,400

inflating the AeroShell and we're into

3047

02:15:17,629 --> 02:15:13,860

the inflation sequence we'll start with

3048

02:15:20,870 --> 02:15:17,639

a soft start that slowly flows air or

3049

02:15:22,790 --> 02:15:20,880

nitrogen into the into the AeroShell and

3050

02:15:25,189 --> 02:15:22,800

then move full open and start a fast

3051

02:15:27,890 --> 02:15:25,199

inflation here's a data screen that will

3052

02:15:31,550 --> 02:15:27,900

be tracking John that will uh allow us

3053

02:15:33,890 --> 02:15:31,560

to see the Milestones as they pass uh of

3054

02:15:38,330 --> 02:15:33,900

course the lofted is going to be sending

3055

02:15:41,629 --> 02:15:38,340

data sometimes sporadically to the crew

3056

02:15:44,149 --> 02:15:41,639

on the ground and uh that in turn is

3057

02:15:47,149 --> 02:15:44,159

translated into this screen that you see

3058

02:15:50,149 --> 02:15:47,159

here where we have an expected Milestone

3059

02:15:52,069 --> 02:15:50,159

and then a detected Milestone talk a

3060

02:15:54,890 --> 02:15:52,079

little bit about that yeah correct so

3061

02:15:56,990 --> 02:15:54,900

the this screen here has uh all the

3062

02:15:59,209 --> 02:15:57,000

major Milestones a lot of the major

3063

02:16:02,450 --> 02:15:59,219

milestones we don't have any way of

3064

02:16:04,970 --> 02:16:02,460

verify verifying with data from from the

3065

02:16:07,010 --> 02:16:04,980

vehicle so they're they're just marked

3066

02:16:09,290 --> 02:16:07,020

as expected based on the time elapsed in

3067

02:16:11,689 --> 02:16:09,300

the mission uh the ones that show up as

3068

02:16:14,390 --> 02:16:11,699

green we actually have data that comes

3069

02:16:15,950 --> 02:16:14,400

back from the from the uh spacecraft

3070

02:16:17,149 --> 02:16:15,960

that tells us that this event has

3071

02:16:19,010 --> 02:16:17,159

occurred

3072

02:16:22,310 --> 02:16:19,020

and while we have a couple minutes we're

3073

02:16:23,870 --> 02:16:22,320

waiting for the next uh Milestone the

3074

02:16:26,870 --> 02:16:23,880

one that we're expecting and that's the

3075

02:16:29,330 --> 02:16:26,880

spin up of lofted this will be where

3076

02:16:31,910 --> 02:16:29,340

Centaur will start uh

3077

02:16:36,830 --> 02:16:31,920

spinning start rolling over to get that

3078

02:16:40,070 --> 02:16:36,840

uh that lofted uh return vehicle to get

3079

02:16:43,009 --> 02:16:40,080

uh stabilized correct yeah so when once

3080

02:16:45,709 --> 02:16:43,019

we get up to uh about three or four PSI

3081

02:16:48,169 --> 02:16:45,719

we call that a maneuvering stiffness uh

3082

02:16:50,389 --> 02:16:48,179

the the inflatable behaves more like a

3083

02:16:53,270 --> 02:16:50,399

rigid body and the Centaur can spin us

3084

02:16:55,669 --> 02:16:53,280

up to around 3 RPM and that will provide

3085

02:16:57,770 --> 02:16:55,679

us with a gyroscopic rigidity so that

3086

02:17:00,110 --> 02:16:57,780

when we're on our ballistic our re-entry

3087

02:17:02,990 --> 02:17:00,120

trajectory we're we're a stable vehicle

3088

02:17:04,429 --> 02:17:03,000

absolutely separation shortly and while

3089

02:17:07,250 --> 02:17:04,439

we have a moment we want to call for a

3090

02:17:09,589 --> 02:17:07,260

photo just a a light moment for your

3091

02:17:11,690 --> 02:17:09,599

team Sean

3092

02:17:14,929 --> 02:17:11,700

this happened out at space launch

3093

02:17:19,250 --> 02:17:14,939

complex 3 earlier this evening

3094

02:17:23,209 --> 02:17:19,260

yes there's a lofted engineer RJ Bodkin

3095

02:17:27,830 --> 02:17:25,610

to Jenny shook

3096

02:17:30,410 --> 02:17:27,840

and they did this just before launch

3097

02:17:32,570 --> 02:17:30,420

today uh certainly something that the

3098

02:17:36,230 --> 02:17:32,580

lofta team must be really happy about

3099

02:17:38,389 --> 02:17:36,240

and certainly uh you know RJ is as well

3100

02:17:41,049 --> 02:17:38,399

oh yeah we're absolutely ecstatic for

3101

02:17:43,310 --> 02:17:41,059

both uh RJ and Jen

3102

02:17:45,349 --> 02:17:43,320

there was a lot of effort that went into

3103

02:17:47,270 --> 02:17:45,359

planning that and making that possible

3104

02:17:50,030 --> 02:17:47,280

and we're very very excited to see that

3105

02:17:52,730 --> 02:17:50,040

RJ was able to um to propose today at

3106

02:17:55,730 --> 02:17:52,740

the pad and it's so it's a big day for

3107

02:17:59,150 --> 02:17:55,740

him uh in addition to to The Loft

3108

02:18:03,190 --> 02:17:59,160

admission and and we're very uh very

3109

02:18:07,030 --> 02:18:03,200

thankful to have been part of that

3110

02:18:09,950 --> 02:18:07,040

and love RJ and Jen been together since

3111

02:18:11,990 --> 02:18:09,960

2019. congratulations to both of them

3112

02:18:14,870 --> 02:18:12,000

and to the lofted team but we continue

3113

02:18:16,549 --> 02:18:14,880

now with our technology demonstration

3114

02:18:18,770 --> 02:18:16,559

here

3115

02:18:20,750 --> 02:18:18,780

right now you're starting to see the

3116

02:18:24,589 --> 02:18:20,760

Centaur role that's that role we were

3117

02:18:26,810 --> 02:18:24,599

talking about spinning up lofted

3118

02:18:30,049 --> 02:18:26,820

standing by for lofted separation in a

3119

02:18:35,690 --> 02:18:32,030

and then less than 60 seconds that

3120

02:18:40,849 --> 02:18:37,910

these Milestones by the way were hoping

3121

02:18:44,750 --> 02:18:40,859

to have a video downlink

3122

02:18:47,150 --> 02:18:44,760

just about 15 minutes from now

3123

02:18:49,370 --> 02:18:47,160

we'll be able to see

3124

02:18:51,770 --> 02:18:49,380

what the camera on board Centaur

3125

02:19:11,990 --> 02:18:51,780

recorded as lofted was spun up and

3126
02:19:16,790 --> 02:19:15,169
and we have successful indication of a

3127
02:19:20,570 --> 02:19:16,800
separation of the lofted re-entry

3128
02:19:23,870 --> 02:19:20,580
vehicle and there it goes lofteds

3129
02:19:25,730 --> 02:19:23,880
on its way back down to earth Sean so

3130
02:19:28,250 --> 02:19:25,740
we're free flying now and this is great

3131
02:19:31,190 --> 02:19:28,260
news because now that we're separate uh

3132
02:19:32,629 --> 02:19:31,200
the lofted vehicle turns on a uh a

3133
02:19:34,190 --> 02:19:32,639
real-time Beacon and we'll start

3134
02:19:36,230 --> 02:19:34,200
transmitting data so we'll be able to

3135
02:19:38,690 --> 02:19:36,240
confirm uh some of these images that

3136
02:19:39,889 --> 02:19:38,700
we're seeing on the computer model we

3137
02:19:41,810 --> 02:19:39,899
got a little bit of time before that

3138
02:19:43,129 --> 02:19:41,820

happens before lofted really starts

3139

02:19:44,870 --> 02:19:43,139

moving through the atmosphere and coming

3140

02:19:47,929 --> 02:19:44,880

back down to earth so in the meantime

3141

02:19:50,510 --> 02:19:47,939

we're going to throw it back to make it

3142

02:19:52,010 --> 02:19:50,520

great news good to see during re-entry

3143

02:19:56,330 --> 02:19:52,020

the heat shield will be going faster

3144

02:19:58,310 --> 02:19:56,340

than 22 200 miles per hour then Earth's

3145

02:20:00,770 --> 02:19:58,320

atmosphere will start slowing it down

3146

02:20:04,070 --> 02:20:00,780

significantly it will experience a peak

3147

02:20:05,810 --> 02:20:04,080

deceleration of nine G's we asked the

3148

02:20:08,450 --> 02:20:05,820

NASA expert about the different ways we

3149

02:20:10,969 --> 02:20:08,460

can slow spacecraft down

3150

02:20:12,650 --> 02:20:10,979

while there are primarily two methods of

3151
02:20:14,389 --> 02:20:12,660
thought for House Pace craft slowdown

3152
02:20:15,889 --> 02:20:14,399
and you really have to ask yourself are

3153
02:20:18,110 --> 02:20:15,899
we Landing in an area that has an

3154
02:20:20,630 --> 02:20:18,120
atmosphere if not you definitely want to

3155
02:20:22,969 --> 02:20:20,640
go with retro propulsion where you use

3156
02:20:24,770 --> 02:20:22,979
retro thrusters pointed down at the

3157
02:20:26,929 --> 02:20:24,780
surface of the planet to slow yourself

3158
02:20:28,790 --> 02:20:26,939
down as you're coming in if you do have

3159
02:20:30,349 --> 02:20:28,800
an atmosphere it makes it a lot easier

3160
02:20:32,929 --> 02:20:30,359
as the atmosphere acts as kind of a

3161
02:20:35,090 --> 02:20:32,939
giant break as you slow down so you have

3162
02:20:36,950 --> 02:20:35,100
your missions like Apollo that used

3163
02:20:38,570 --> 02:20:36,960

retro propulsion when we went to the

3164

02:20:40,670 --> 02:20:38,580

moon when you're able to use the

3165

02:20:42,469 --> 02:20:40,680

atmosphere you have your heat shield on

3166

02:20:44,210 --> 02:20:42,479

the blunt end of your spacecraft coming

3167

02:20:46,070 --> 02:20:44,220

into the atmosphere and then the

3168

02:20:47,450 --> 02:20:46,080

parachutes will come out and slow you

3169

02:20:49,070 --> 02:20:47,460

down the rest of the way to provide that

3170

02:20:51,349 --> 02:20:49,080

safe landing

3171

02:20:53,150 --> 02:20:51,359

here at Nasa we're constantly developing

3172

02:20:55,849 --> 02:20:53,160

new technologies to help with that entry

3173

02:20:57,530 --> 02:20:55,859

descent and Landing or edl some of the

3174

02:20:59,750 --> 02:20:57,540

trick in entering atmosphere is when you

3175

02:21:01,370 --> 02:20:59,760

do have it but it's really thin one of

3176
02:21:03,710 --> 02:21:01,380
the Technologies NASA is developing to

3177
02:21:06,889 --> 02:21:03,720
handle those is called Hyatt Hypersonic

3178
02:21:09,530 --> 02:21:06,899
inflatable aerodynamic decelerator the

3179
02:21:11,270 --> 02:21:09,540
hiat can come as a heat shield much like

3180
02:21:12,710 --> 02:21:11,280
the blunt body heat shields of those

3181
02:21:15,050 --> 02:21:12,720
older missions that were made out of

3182
02:21:18,110 --> 02:21:15,060
Ceramics or metals and were very hard

3183
02:21:20,389 --> 02:21:18,120
however hiat is a flexible woven system

3184
02:21:21,830 --> 02:21:20,399
that compacts really really small so

3185
02:21:24,110 --> 02:21:21,840
you're able to actually get a very small

3186
02:21:26,450 --> 02:21:24,120
heat shield inside your rocket diameter

3187
02:21:28,130 --> 02:21:26,460
with hiat when the fairing comes off the

3188
02:21:30,230 --> 02:21:28,140

heat shield can then inflate and expand

3189

02:21:32,210 --> 02:21:30,240

to a diameter much larger than your

3190

02:21:34,010 --> 02:21:32,220

rocket therefore you're able to bring in

3191

02:21:34,849 --> 02:21:34,020

a much larger payload than you were

3192

02:21:37,250 --> 02:21:34,859

before

3193

02:21:39,050 --> 02:21:37,260

so how does spacecraft slow down you

3194

02:21:41,030 --> 02:21:39,060

have retro propulsion you've got your

3195

02:21:42,650 --> 02:21:41,040

rigid Arrow shells and parachutes and

3196

02:21:45,950 --> 02:21:42,660

coming soon we've got these inflatable

3197

02:21:50,150 --> 02:21:47,929

that's free flying back to Earth as we

3198

02:21:52,610 --> 02:21:50,160

speaking now lofted is a unique mission for

3199

02:21:55,309 --> 02:21:52,620

NASA's launch Services Program NASA's

3200

02:21:59,330 --> 02:21:55,319

Jasmine Hopkins found out why with NASA

3201

02:22:00,830 --> 02:21:59,340

trajectory and analyst Callie Burke

3202

02:22:03,830 --> 02:22:00,840

thank you so much for joining us today

3203

02:22:06,050 --> 02:22:03,840

Cali you are a flight design analyst for

3204

02:22:08,630 --> 02:22:06,060

NASA's launch Services Program a big

3205

02:22:11,210 --> 02:22:08,640

title for a big job so tell me what is

3206

02:22:13,490 --> 02:22:11,220

so unique about this Mission so we have

3207

02:22:15,410 --> 02:22:13,500

the jpss2 mission separate and then the

3208

02:22:16,670 --> 02:22:15,420

Centaur flashes down in the ocean so

3209

02:22:18,650 --> 02:22:16,680

that it doesn't stay up in space as

3210

02:22:20,630 --> 02:22:18,660

herbal debris but it's not going there

3211

02:22:22,010 --> 02:22:20,640

alone it's going to have another payload

3212

02:22:24,530 --> 02:22:22,020

that after the engine does its last

3213

02:22:26,809 --> 02:22:24,540

firing it's coming down it's going to

3214

02:22:28,490 --> 02:22:26,819

collect aerospace data on the way down

3215

02:22:30,290 --> 02:22:28,500

so Centaur is going to be joined and

3216

02:22:32,570 --> 02:22:30,300

when it splashes down that is awesome so

3217

02:22:34,910 --> 02:22:32,580

two missions in one basically that is

3218

02:22:37,250 --> 02:22:34,920

really cool so can you tell me how did

3219

02:22:38,809 --> 02:22:37,260

you design the trajectory for lofted to

3220

02:22:40,070 --> 02:22:38,819

make sure it's ride to space was safe

3221

02:22:41,270 --> 02:22:40,080

another team member and I started

3222

02:22:43,910 --> 02:22:41,280

working this about five and a half years

3223

02:22:46,250 --> 02:22:43,920

ago and we had him design an early

3224

02:22:48,889 --> 02:22:46,260

analysis trajectory model because we

3225

02:22:50,809 --> 02:22:48,899

knew that the jpss2 was on the atlas 541

3226

02:22:53,090 --> 02:22:50,819

and there'd be extra fuel left over so

3227

02:22:55,309 --> 02:22:53,100

we could have another payload so as we

3228

02:22:57,530 --> 02:22:55,319

were looking at ones lofta came to us

3229

02:22:58,790 --> 02:22:57,540

about four years ago and so we were

3230

02:23:00,410 --> 02:22:58,800

doing some modeling for them to make

3231

02:23:02,929 --> 02:23:00,420

sure that okay we can bring the Centaur

3232

02:23:04,190 --> 02:23:02,939

down in places that are safe for it way

3233

02:23:06,770 --> 02:23:04,200

to consider you know where it might

3234

02:23:08,690 --> 02:23:06,780

slash down and when so that they could

3235

02:23:10,130 --> 02:23:08,700

retrieve parts of lofted so they can get

3236

02:23:11,570 --> 02:23:10,140

the data back and then also we really

3237

02:23:13,250 --> 02:23:11,580

had to make sure that as we looked at it

3238

02:23:14,330 --> 02:23:13,260

it could get the speed and angle it was

3239

02:23:16,190 --> 02:23:14,340

looking for as it went through the

3240

02:23:18,429 --> 02:23:16,200

atmosphere collecting its data so that's

3241

02:23:21,230 --> 02:23:18,439

early work we did Ula has done the final

3242

02:23:22,370 --> 02:23:21,240

introductory design but we also assisted

3243

02:23:24,530 --> 02:23:22,380

on this Mission

3244

02:23:25,849 --> 02:23:24,540

um you know we're advisory on it so we

3245

02:23:27,590 --> 02:23:25,859

assisted with the integration effort

3246

02:23:29,330 --> 02:23:27,600

basically bringing lsp's rocket

3247

02:23:30,410 --> 02:23:29,340

expertise to having the spacecraft

3248

02:23:32,389 --> 02:23:30,420

customer in the launch vehicle

3249

02:23:34,309 --> 02:23:32,399

contractor come together make sure they

3250

02:23:36,170 --> 02:23:34,319

understand the rocket capabilities what

3251

02:23:38,090 --> 02:23:36,180

data they can get and just have a

3252

02:23:39,530 --> 02:23:38,100

successful mission that is fantastic and

3253

02:23:42,110 --> 02:23:39,540

you've worked with the launch Services

3254

02:23:43,730 --> 02:23:42,120

Program for a few years so how are you

3255

02:23:45,710 --> 02:23:43,740

feeling are you excited about Lofton to

3256

02:23:46,849 --> 02:23:45,720

see how it works oh yeah I love um you

3257

02:23:48,770 --> 02:23:46,859

know it's bringing something new for me

3258

02:23:50,150 --> 02:23:48,780

a different experience that it's going

3259

02:23:52,309 --> 02:23:50,160

to be you know doing a technology

3260

02:23:54,830 --> 02:23:52,319

demonstration as a re-enter so that's

3261

02:23:56,510 --> 02:23:54,840

quite different and then also I'm

3262

02:23:58,969 --> 02:23:56,520

working on currently my third Mars

3263

02:24:01,250 --> 02:23:58,979

Landing Mission and this technology you

3264

02:24:02,510 --> 02:24:01,260

know if we get good data from it could

3265

02:24:04,370 --> 02:24:02,520

develop into something that we could use

3266

02:24:06,349 --> 02:24:04,380

for future Mars line emissions to even

3267

02:24:08,929 --> 02:24:06,359

bring greater mass down to the surface

3268

02:24:10,490 --> 02:24:08,939

of Mars that is awesome so Kelly what is

3269

02:24:13,490 --> 02:24:10,500

your role on launch day where will you

3270

02:24:16,010 --> 02:24:13,500

be I will be here we're in the launch uh

3271

02:24:18,349 --> 02:24:16,020

launch vehicle data center uh two and

3272

02:24:20,809 --> 02:24:18,359

Hangar AE so I'll be sitting down as

3273

02:24:22,910 --> 02:24:20,819

NASA flight Dynamics so my job is once

3274

02:24:24,410 --> 02:24:22,920

the rocket actually takes off and it's

3275

02:24:26,630 --> 02:24:24,420

fine to make sure that it's on the right

3276

02:24:28,429 --> 02:24:26,640

course tracking it and that we're going

3277

02:24:30,110 --> 02:24:28,439

to get jpss to deliver to the right

3278

02:24:31,849 --> 02:24:30,120

place in the right time and let

3279

02:24:33,469 --> 02:24:31,859

everybody know you know yes that's where

3280

02:24:34,610 --> 02:24:33,479

it's supposed to be yeah that's awesome

3281

02:24:36,110 --> 02:24:34,620

we definitely want to hear that Kelly

3282

02:24:37,730 --> 02:24:36,120

thank you so much for joining us today

3283

02:24:39,349 --> 02:24:37,740

back to you

3284

02:24:41,630 --> 02:24:39,359

Cali was great she really explained

3285

02:24:43,790 --> 02:24:41,640

again why this is so unique you know

3286

02:24:46,429 --> 02:24:43,800

usually after acquisition of signal for

3287

02:24:49,370 --> 02:24:46,439

the spacecraft that is uh end of mission

3288

02:24:51,110 --> 02:24:49,380

for uh our partners over at the launch

3289

02:24:52,730 --> 02:24:51,120

Services Program but now they are

3290

02:24:54,830 --> 02:24:52,740

actually helping to bring something back

3291

02:24:57,170 --> 02:24:54,840

down and that is uh the lofted

3292

02:24:58,550 --> 02:24:57,180

demonstration so uh we've been talking

3293

02:24:59,809 --> 02:24:58,560

about this throughout the show you know

3294

02:25:01,910 --> 02:24:59,819

this flight test could have many

3295

02:25:03,770 --> 02:25:01,920

applications for NASA moving forward so

3296

02:25:05,870 --> 02:25:03,780

to talk more about that I spoke with

3297

02:25:07,429 --> 02:25:05,880

Michelle monk NASA's acting Chief

3298

02:25:09,530 --> 02:25:07,439

Architect with the space technology

3299

02:25:11,570 --> 02:25:09,540

mission directorate

3300

02:25:12,650 --> 02:25:11,580

so Michelle tell me about your role in

3301

02:25:15,110 --> 02:25:12,660

lofted

3302

02:25:17,630 --> 02:25:15,120

well I'm the entry descent and Landing

3303

02:25:19,429 --> 02:25:17,640

systems capability lead for NASA and so

3304

02:25:22,070 --> 02:25:19,439

I work for the space technology Mission

3305

02:25:24,889 --> 02:25:22,080

directorate and I guide all of our

3306

02:25:28,070 --> 02:25:24,899

technology investments in entry descent

3307

02:25:30,469 --> 02:25:28,080

and Landing so I'm constantly looking at

3308

02:25:32,690 --> 02:25:30,479

the missions of the future and what NASA

3309

02:25:35,929 --> 02:25:32,700

is trying to accomplish with both

3310

02:25:38,150 --> 02:25:35,939

science and human exploration and what

3311

02:25:40,190 --> 02:25:38,160

we're going to need to to accomplish

3312

02:25:42,469 --> 02:25:40,200

those missions yeah why is it so

3313

02:25:44,330 --> 02:25:42,479

important to keep advancing those entry

3314

02:25:46,309 --> 02:25:44,340

descents and Landing Technologies like

3315

02:25:48,530 --> 02:25:46,319

this inflatable heat shield well we're

3316

02:25:50,809 --> 02:25:48,540

constantly wanting to do more aggressive

3317

02:25:53,389 --> 02:25:50,819

science missions the scientists want to

3318

02:25:56,210 --> 02:25:53,399

go to exact spots on planetary surfaces

3319

02:25:59,170 --> 02:25:56,220

we want to take more instruments we want

3320

02:26:01,550 --> 02:25:59,180

to send people to Mars someday and so

3321

02:26:03,710 --> 02:26:01,560

advancing those Technologies and making

3322

02:26:06,349 --> 02:26:03,720

steady progress is really really

3323

02:26:08,929 --> 02:26:06,359

important to where we want to go as a as

3324

02:26:11,630 --> 02:26:08,939

an agency and as a society what about

3325

02:26:13,250 --> 02:26:11,640

you personally what what are you most uh

3326

02:26:16,330 --> 02:26:13,260

looking forward to when comes to

3327

02:26:19,670 --> 02:26:16,340

possibly using this technology

3328

02:26:22,370 --> 02:26:19,680

lofted is such a key milestone in our

3329

02:26:25,190 --> 02:26:22,380

progression of the Hypersonic inflatable

3330

02:26:26,990 --> 02:26:25,200

aerodynamic decelerator technology you

3331

02:26:29,330 --> 02:26:27,000

know we've done ground tests and then

3332

02:26:31,309 --> 02:26:29,340

we've flown at the three meter scale we

3333

02:26:33,770 --> 02:26:31,319

did more ground test and now we're going

3334

02:26:36,170 --> 02:26:33,780

to fly at the six meter scale and so

3335

02:26:38,090 --> 02:26:36,180

this is really a key step in the

3336

02:26:40,429 --> 02:26:38,100

progression to a human Mars mission

3337

02:26:43,309 --> 02:26:40,439

which I've been working on since I got

3338

02:26:45,469 --> 02:26:43,319

to the agency a very long time ago and

3339

02:26:47,870 --> 02:26:45,479

so that's really the Holy Grail we want

3340

02:26:51,290 --> 02:26:47,880

to make humans and interplanetary

3341

02:26:54,170 --> 02:26:51,300

species and the hiat is the perfect

3342

02:26:56,030 --> 02:26:54,180

technology to help us do that yeah and

3343

02:26:58,010 --> 02:26:56,040

humans on on the moon is is something

3344

02:27:00,230 --> 02:26:58,020

yes to look forward to but also a lot of

3345

02:27:01,910 --> 02:27:00,240

science experiments are going to be

3346

02:27:05,150 --> 02:27:01,920

facilitated because of a mission like

3347

02:27:08,389 --> 02:27:05,160

that right oh absolutely the scientists

3348

02:27:10,969 --> 02:27:08,399

are really wanting to go where the water

3349

02:27:13,490 --> 02:27:10,979

is but they want to go to new places too

3350

02:27:16,429 --> 02:27:13,500

like the highlands and an inflatable

3351

02:27:18,830 --> 02:27:16,439

decelerator with its larger size really

3352

02:27:22,130 --> 02:27:18,840

enables us to land at higher altitudes

3353

02:27:23,030 --> 02:27:22,140

on Mars than we've ever landed before so

3354

02:27:24,830 --> 02:27:23,040

this is really going to help us

3355

02:27:26,750 --> 02:27:24,840

accomplish a lot that's exciting

3356

02:27:28,849 --> 02:27:26,760

absolutely Michelle thank you so much

3357

02:27:30,170 --> 02:27:28,859

thank you

3358

02:27:32,389 --> 02:27:30,180

and now let's talk to somebody else

3359

02:27:35,030 --> 02:27:32,399

who's also with NASA's space technology

3360

02:27:36,770 --> 02:27:35,040

Mission directorate again which is

3361

02:27:39,830 --> 02:27:36,780

managing today's flight test we're

3362

02:27:42,650 --> 02:27:39,840

talking to somebody who's been at the

3363

02:27:44,150 --> 02:27:42,660

Forefront of that helped create that

3364

02:27:46,370 --> 02:27:44,160

mission directorate and that it's that's

3365

02:27:49,550 --> 02:27:46,380

its Deputy Administrator so let's go on

3366

02:27:52,309 --> 02:27:49,560

over to Anjali caring at Langley where

3367

02:27:57,530 --> 02:27:52,319

she got to watch this historic test so

3368

02:28:03,230 --> 02:28:00,349

good morning Megan yes I'm here with Dr

3369

02:28:05,510 --> 02:28:03,240

prasand Desai Dr Desai

3370

02:28:07,610 --> 02:28:05,520

I know that you got your start right

3371

02:28:09,889 --> 02:28:07,620

here at Nasa Langley it's foundational

3372

02:28:11,809 --> 02:28:09,899

for you and in a lot of ways it's been

3373

02:28:14,990 --> 02:28:11,819

foundational for the high ad technology

3374

02:28:17,750 --> 02:28:15,000

as well what do you think makes

3375

02:28:19,670 --> 02:28:17,760

Langley a place that should be

3376

02:28:22,010 --> 02:28:19,680

continuing to develop this high-end

3377

02:28:23,929 --> 02:28:22,020

technology I think um you know it goes

3378

02:28:25,490 --> 02:28:23,939

back to Langley's long history uh when

3379

02:28:27,770 --> 02:28:25,500

it was first even NACA a lot of the

3380

02:28:29,690 --> 02:28:27,780

aerodynamic work that was done kind of

3381

02:28:33,130 --> 02:28:29,700

leveraged into the space program

3382

02:28:35,469 --> 02:28:33,140

when we started sending spacecraft into

3383

02:28:37,969 --> 02:28:35,479

other planets and stuff so the first

3384

02:28:40,130 --> 02:28:37,979

Landings on another planet the Viking

3385

02:28:42,950 --> 02:28:40,140

Landings land NASA Langley LED that

3386

02:28:44,690 --> 02:28:42,960

activity and so that expertise since

3387

02:28:46,670 --> 02:28:44,700

then and then all the subsequent

3388

02:28:48,830 --> 02:28:46,680

Landings that we've done on Mars with

3389

02:28:50,690 --> 02:28:48,840

the Rovers or even back at Earth Langley

3390

02:28:52,610 --> 02:28:50,700

has been integral to the entry descent

3391

02:28:55,070 --> 02:28:52,620

Landing activities for those missions

3392

02:28:57,650 --> 02:28:55,080

including the shuttle of flights as well

3393

02:29:01,010 --> 02:28:57,660

and so that expertise over that history

3394

02:29:02,690 --> 02:29:01,020

is what we're leveraging for this new

3395

02:29:05,389 --> 02:29:02,700

technology all those other Technologies

3396

02:29:07,250 --> 02:29:05,399

were based on a rigid AeroShell

3397

02:29:10,190 --> 02:29:07,260

um we know that that limits what we can

3398

02:29:12,230 --> 02:29:10,200

launch by the faring volume of a launch

3399

02:29:14,929 --> 02:29:12,240

vehicle and so we're going to this

3400

02:29:17,630 --> 02:29:14,939

inflatable approach to be able to create

3401
02:29:20,150 --> 02:29:17,640
a much larger drag device so that we can

3402
02:29:22,309 --> 02:29:20,160
land heavier payloads uh for wherever it

3403
02:29:23,570 --> 02:29:22,319
is be it on Mars or even here back on

3404
02:29:25,490 --> 02:29:23,580
Earth

3405
02:29:27,290 --> 02:29:25,500
very exciting and obviously there are a

3406
02:29:29,210 --> 02:29:27,300
lot of possibilities speaking of

3407
02:29:31,610 --> 02:29:29,220
possibilities I know that you've

3408
02:29:33,590 --> 02:29:31,620
actually had a lot of experience with

3409
02:29:35,929 --> 02:29:33,600
possibilities on Mars and Mars research

3410
02:29:38,990 --> 02:29:35,939
stuff like the Phoenix Lander and the

3411
02:29:41,090 --> 02:29:39,000
exploration Rover can you tell me what

3412
02:29:43,190 --> 02:29:41,100
kind of exciting new research you hope

3413
02:29:45,830 --> 02:29:43,200

that this Haya technology can enable us

3414

02:29:48,230 --> 02:29:45,840

to do maybe far away in places like Mars

3415

02:29:50,450 --> 02:29:48,240

but also closer to home right and so

3416

02:29:52,610 --> 02:29:50,460

what we're trying to do is enable

3417

02:29:54,770 --> 02:29:52,620

greater capability to land higher

3418

02:29:56,630 --> 02:29:54,780

payload masses for the robotic missions

3419

02:29:58,190 --> 02:29:56,640

we've done with Rovers you know right

3420

02:30:00,230 --> 02:29:58,200

now our capability is about one metric

3421

02:30:01,610 --> 02:30:00,240

ton one and a half but when we want to

3422

02:30:03,410 --> 02:30:01,620

send humans to Mars we need to land

3423

02:30:06,469 --> 02:30:03,420

about 20 metric tons we don't know how

3424

02:30:09,530 --> 02:30:06,479

to do that and the limits of uh the

3425

02:30:11,450 --> 02:30:09,540

launch volume of a launch rocket limits

3426

02:30:14,270 --> 02:30:11,460

rigid air shell and so this inflatable

3427

02:30:16,370 --> 02:30:14,280

technology is a great application to try

3428

02:30:18,530 --> 02:30:16,380

for being able to land those type of

3429

02:30:20,290 --> 02:30:18,540

payloads even when you go further into

3430

02:30:23,510 --> 02:30:20,300

the solar system when you go to the

3431

02:30:25,670 --> 02:30:23,520

moons of the outer planets they have

3432

02:30:28,190 --> 02:30:25,680

sphere and being able to descend through

3433

02:30:29,450 --> 02:30:28,200

those we need to be able to land higher

3434

02:30:31,610 --> 02:30:29,460

enough masses so this inflatable

3435

02:30:33,710 --> 02:30:31,620

technology now that's on the far term

3436

02:30:35,270 --> 02:30:33,720

end of aspect of it but on the near-term

3437

02:30:37,010 --> 02:30:35,280

applications this is why we have the

3438

02:30:39,170 --> 02:30:37,020

partnership with Ula you know they're

3439

02:30:41,030 --> 02:30:39,180

looking to enable this technology to

3440

02:30:42,830 --> 02:30:41,040

help them on their Vulcan rocket to be

3441

02:30:45,530 --> 02:30:42,840

able to make it used right now right

3442

02:30:47,630 --> 02:30:45,540

over the next coming years and then in a

3443

02:30:50,929 --> 02:30:47,640

few in in the midterm we want to be able

3444

02:30:52,969 --> 02:30:50,939

to land even payloads from low earth

3445

02:30:54,710 --> 02:30:52,979

orbit or even back from the Moon as we

3446

02:30:56,870 --> 02:30:54,720

sustain longer presence on the surface

3447

02:30:58,550 --> 02:30:56,880

and that is incredibly exciting so much

3448

02:31:01,070 --> 02:30:58,560

to look forward to in the future thank

3449

02:31:03,770 --> 02:31:01,080

you so much for talking with us Dr Desai

3450

02:31:05,929 --> 02:31:03,780

and with that back over to you Megan

3451

02:31:07,370 --> 02:31:05,939

thank you both So the plan is for the

3452

02:31:09,830 --> 02:31:07,380

heat shield to splash down in the

3453

02:31:13,190 --> 02:31:09,840

Pacific Ocean about 500 Miles off the

3454

02:31:15,710 --> 02:31:13,200

coast of Hawaii that's where Kahana 2 is

3455

02:31:18,050 --> 02:31:15,720

waiting right now we shot this video of

3456

02:31:20,690 --> 02:31:18,060

the 220 foot long recovery vessel before

3457

02:31:23,450 --> 02:31:20,700

it left Honolulu two and a half days ago

3458

02:31:26,389 --> 02:31:23,460

on board or both NASA and the Ula

3459

02:31:28,610 --> 02:31:26,399

Personnel they will use a 14-ton knuckle

3460

02:31:30,710 --> 02:31:28,620

boom crane to pull the heat shield out

3461

02:31:33,530 --> 02:31:30,720

of the water the team will also retrieve

3462

02:31:35,270 --> 02:31:33,540

a data recorder that that ejected from

3463

02:31:37,550 --> 02:31:35,280

the re-entry vehicle just before

3464

02:31:39,349 --> 02:31:37,560

Splashdown

3465

02:31:41,270 --> 02:31:39,359

earlier I spoke with the United launch

3466

02:31:43,670 --> 02:31:41,280

Alliance Chief rocket scientist John

3467

02:31:46,910 --> 02:31:43,680

Reed we spoke about ula's role in this

3468

02:31:50,870 --> 02:31:49,250

so John why has Ula partnered with NASA

3469

02:31:53,690 --> 02:31:50,880

to test this new inflatable heat shield

3470

02:31:55,490 --> 02:31:53,700

so Ula is a merchant supplier is very

3471

02:31:57,469 --> 02:31:55,500

interested in having Partnerships and

3472

02:31:59,450 --> 02:31:57,479

moving Technologies forward

3473

02:32:02,210 --> 02:31:59,460

Bernard cutter who this launch was

3474

02:32:04,670 --> 02:32:02,220

dedicated to really set up this

3475

02:32:06,050 --> 02:32:04,680

partnership back a number of years ago

3476

02:32:08,630 --> 02:32:06,060

and I came on the scene a little over

3477

02:32:10,670 --> 02:32:08,640

five years ago what we were looking for

3478

02:32:12,889 --> 02:32:10,680

in this relationship was really to work

3479

02:32:15,110 --> 02:32:12,899

together to move Technologies forward so

3480

02:32:17,570 --> 02:32:15,120

NASA was looking for a ride to go do

3481

02:32:19,849 --> 02:32:17,580

this demonstration Mission we were able

3482

02:32:21,469 --> 02:32:19,859

to bring jpss along since we were going

3483

02:32:23,630 --> 02:32:21,479

to be launching that payload and had the

3484

02:32:26,270 --> 02:32:23,640

margin to go do this mission

3485

02:32:28,910 --> 02:32:26,280

then our interest was really in growing

3486

02:32:31,309 --> 02:32:28,920

beyond the size of this high ad to be

3487

02:32:33,050 --> 02:32:31,319

able to do engine reuse and NASA wanted

3488

02:32:36,050 --> 02:32:33,060

to go beyond what we would need for

3489

02:32:37,730 --> 02:32:36,060

reuse to be able to do Mars large masses

3490

02:32:39,349 --> 02:32:37,740

down to the Martian surface sure I'm

3491

02:32:42,590 --> 02:32:39,359

hearing the word reuse a lot why is

3492

02:32:45,889 --> 02:32:42,600

reuse so important so launch access is

3493

02:32:47,510 --> 02:32:45,899

all about dollars per kilogram really we

3494

02:32:49,250 --> 02:32:47,520

wanted to have a reuse system that

3495

02:32:50,990 --> 02:32:49,260

worked with the rocket that we have

3496

02:32:53,090 --> 02:32:51,000

developed to try and bring costs down

3497

02:32:55,250 --> 02:32:53,100

further and why don't we take a look at

3498

02:32:57,410 --> 02:32:55,260

this video of how we're going to apply

3499

02:32:59,150 --> 02:32:57,420

the high-end technology

3500

02:33:01,550 --> 02:32:59,160

really it's interesting to note that

3501

02:33:03,469 --> 02:33:01,560

Rockets used to be one payload would fly

3502

02:33:05,630 --> 02:33:03,479

on one rocket now it's many payloads

3503

02:33:07,309 --> 02:33:05,640

flying at a time and so it's that's why

3504

02:33:09,590 --> 02:33:07,319

it's all about the dollars per kilogram

3505

02:33:11,690 --> 02:33:09,600

so we've designed this in a way where

3506

02:33:13,730 --> 02:33:11,700

you can fly at Expendable mode or

3507

02:33:15,469 --> 02:33:13,740

reusable mode and you can't tell the

3508

02:33:17,809 --> 02:33:15,479

difference so once the payload flies

3509

02:33:20,870 --> 02:33:17,819

away on Centaur then we'll separate the

3510

02:33:22,790 --> 02:33:20,880

thrust structure which is two-thirds of

3511

02:33:24,710 --> 02:33:22,800

the cost of the booster

3512

02:33:26,870 --> 02:33:24,720

that higher that you can see in there

3513

02:33:28,490 --> 02:33:26,880

then inflates as we're coming back down

3514

02:33:30,290 --> 02:33:28,500

towards the atmosphere the heat shield

3515

02:33:32,990 --> 02:33:30,300

is pulled taut by that inflation

3516

02:33:35,210 --> 02:33:33,000

structure and so then that slows us

3517

02:33:37,010 --> 02:33:35,220

through the atmosphere once we get down

3518

02:33:39,290 --> 02:33:37,020

to terminal velocity we'll be low enough

3519

02:33:40,969 --> 02:33:39,300

that we can inflate parachutes to lower

3520

02:33:43,849 --> 02:33:40,979

ourselves gently down to the ocean

3521

02:33:46,490 --> 02:33:43,859

surface so what advantages are there to

3522

02:33:48,590 --> 02:33:46,500

lower costs so the big Advantage for

3523

02:33:50,389 --> 02:33:48,600

lower cost is it enables lots of

3524

02:33:52,849 --> 02:33:50,399

different missions in space lots of

3525

02:33:54,530 --> 02:33:52,859

applications in space development of

3526

02:33:55,849 --> 02:33:54,540

products that we can't make here on

3527

02:33:57,830 --> 02:33:55,859

Earth and the ability to cost

3528

02:33:59,870 --> 02:33:57,840

effectively bring them back so it's

3529

02:34:01,370 --> 02:33:59,880

really expanding the use of space for

3530

02:34:08,210 --> 02:34:01,380

all Humanity yeah so it's going to

3531

02:34:12,889 --> 02:34:10,309

so this new foldable customizable

3532

02:34:15,110 --> 02:34:12,899

Innovative heat shield could change how

3533

02:34:17,389 --> 02:34:15,120

we explore our universe here's how one

3534

02:34:20,510 --> 02:34:17,399

of NASA's mechanical engineers describes

3535

02:34:25,309 --> 02:34:23,389

I'm Angie Emmett and I'm helping to test

3536

02:34:27,770 --> 02:34:25,319

technologies that will one day send

3537

02:34:30,410 --> 02:34:27,780

humans to Mars I work for lofted which

3538

02:34:32,929 --> 02:34:30,420

is a low earth orbit flight test of the

3539

02:34:35,030 --> 02:34:32,939

inflatable decelerator behind me you can

3540

02:34:37,250 --> 02:34:35,040

see the AeroShell the great thing about

3541

02:34:39,889 --> 02:34:37,260

an inflatable AeroShell is that you can

3542

02:34:41,990 --> 02:34:39,899

pack it up very tight you can see that

3543

02:34:44,210 --> 02:34:42,000

it fits well within that fairing volume

3544

02:34:46,550 --> 02:34:44,220

and now we're starting to take the

3545

02:34:49,010 --> 02:34:46,560

nitrogen back out of it so that we can

3546

02:34:51,110 --> 02:34:49,020

move on to packing the AeroShell and

3547

02:34:53,210 --> 02:34:51,120

then when it comes time to enter an

3548

02:34:55,130 --> 02:34:53,220

atmosphere you can inflate it and

3549

02:34:57,889 --> 02:34:55,140

suddenly you have this large surface

3550

02:35:00,770 --> 02:34:57,899

area so that you can decelerate through

3551
02:35:03,050 --> 02:35:00,780
anywhere with an atmosphere during covid

3552
02:35:05,270 --> 02:35:03,060
when I could not come to work we were

3553
02:35:08,150 --> 02:35:05,280
able to go to the end of our block and

3554
02:35:10,849 --> 02:35:08,160
there is a beautiful view of the NASA

3555
02:35:13,130 --> 02:35:10,859
Langley Gantry which was used for the

3556
02:35:16,250 --> 02:35:13,140
Apollo missions it's been used more

3557
02:35:18,230 --> 02:35:16,260
recently for drop tests and we can go

3558
02:35:21,770 --> 02:35:18,240
out and just look at that beautiful

3559
02:35:24,349 --> 02:35:21,780
iconic view I think really what inspires

3560
02:35:26,150 --> 02:35:24,359
me I love being able to go from the

3561
02:35:27,650 --> 02:35:26,160
concept to be able to see this

3562
02:35:29,990 --> 02:35:27,660
technology come to life and to be able

3563
02:35:32,809 --> 02:35:30,000

to prove it out because this is what's

3564

02:35:35,290 --> 02:35:32,819

going to help get human Smarties in the

3565

02:35:40,610 --> 02:35:38,389

we are awaiting the re-entry of the

3566

02:35:43,070 --> 02:35:40,620

inflatable heat shield into our Earth's

3567

02:35:45,590 --> 02:35:43,080

atmosphere to inflate it you need a lot

3568

02:35:49,190 --> 02:35:45,600

of gas and the lofted team tested that

3569

02:35:51,710 --> 02:35:49,200

process before it took flight today

3570

02:35:53,389 --> 02:35:51,720

it's a six meter heat shield and once it

3571

02:35:55,550 --> 02:35:53,399

re-enters this atmosphere it'll actually

3572

02:35:57,830 --> 02:35:55,560

be the largest blunt body object to

3573

02:35:59,990 --> 02:35:57,840

re-enter Earth's atmosphere to inflate

3574

02:36:01,969 --> 02:36:00,000

the hiad for where we want it to

3575

02:36:03,830 --> 02:36:01,979

re-enter to maintain kind of your

3576

02:36:05,450 --> 02:36:03,840

stability as you re-enter through

3577

02:36:07,429 --> 02:36:05,460

Earth's atmosphere you have to carry a

3578

02:36:08,690 --> 02:36:07,439

lot of gas to make that happen so we

3579

02:36:10,790 --> 02:36:08,700

actually have two tanks that have been

3580

02:36:13,370 --> 02:36:10,800

provided by the United launch Alliance

3581

02:36:15,469 --> 02:36:13,380

who has a space act with NASA to perform

3582

02:36:17,090 --> 02:36:15,479

this Mission their partners with us in

3583

02:36:18,770 --> 02:36:17,100

this and they've provided three tanks

3584

02:36:21,050 --> 02:36:18,780

and so we're testing one of the three as

3585

02:36:22,730 --> 02:36:21,060

our kind of qualification tank so right

3586

02:36:24,770 --> 02:36:22,740

now we're doing a blow down test of the

3587

02:36:26,750 --> 02:36:24,780

tank so we'll fill it to that 3000 psi

3588

02:36:28,790 --> 02:36:26,760

and let it vent to atmosphere and we'll

3589

02:36:31,429 --> 02:36:28,800

take measurements all along the vent

3590

02:36:32,929 --> 02:36:31,439

path and within the tank itself to see

3591

02:36:34,670 --> 02:36:32,939

the gas temperature to see what it's

3592

02:36:36,530 --> 02:36:34,680

looking like so then we use that

3593

02:36:38,450 --> 02:36:36,540

information and data to correlate our

3594

02:36:40,429 --> 02:36:38,460

models to get a better idea of how it's

3595

02:36:43,150 --> 02:36:40,439

going to respond in flight and the cool

3596

02:36:45,830 --> 02:36:43,160

thing about hi ad is that it is actually

3597

02:36:46,969 --> 02:36:45,840

on the new Cutting Edge cusp of

3598

02:36:49,190 --> 02:36:46,979

technology for heat shield so

3599

02:36:51,349 --> 02:36:49,200

traditionally heat shields are made with

3600

02:36:53,090 --> 02:36:51,359

metallics or Ceramics and they can only

3601
02:36:54,950 --> 02:36:53,100
be they're pretty firm so if your rocket

3602
02:36:57,110 --> 02:36:54,960
is about this big in diameter your heat

3603
02:36:59,510 --> 02:36:57,120
shield can also only be that same size

3604
02:37:00,950 --> 02:36:59,520
so Lofts it is interesting because it

3605
02:37:03,349 --> 02:37:00,960
actually can compact to a much much

3606
02:37:04,790 --> 02:37:03,359
smaller size and then inflate to much

3607
02:37:07,429 --> 02:37:04,800
larger than anything you would see

3608
02:37:09,950 --> 02:37:07,439
traditionally and this helps us in the

3609
02:37:12,170 --> 02:37:09,960
form of drag for example if we're going

3610
02:37:14,090 --> 02:37:12,180
to Mars the atmosphere is very very thin

3611
02:37:15,830 --> 02:37:14,100
and so we want to create more drag as

3612
02:37:19,070 --> 02:37:15,840
we're coming in so so the larger heat

3613
02:37:21,889 --> 02:37:19,080

shield enables that technology

3614

02:37:23,510 --> 02:37:21,899

time to go back to Daryl and Sean I know

3615

02:37:25,250 --> 02:37:23,520

that we were expecting some new videos

3616

02:37:27,230 --> 02:37:25,260

of the test right guys

3617

02:37:28,730 --> 02:37:27,240

that's right Megan we are uh here inside

3618

02:37:30,650 --> 02:37:28,740

the mission directors Center at

3619

02:37:34,070 --> 02:37:30,660

Vandenberg space Force Base monitoring

3620

02:37:36,349 --> 02:37:34,080

the progress of lofted as it returns to

3621

02:37:38,090 --> 02:37:36,359

earth and uh so far so good we've seen

3622

02:37:40,070 --> 02:37:38,100

some imagery we're going to show you

3623

02:37:42,770 --> 02:37:40,080

that in just a minute but let's get

3624

02:37:45,230 --> 02:37:42,780

everybody caught up on where we are Ula

3625

02:37:48,010 --> 02:37:45,240

completed their part of the mission with

3626

02:37:51,710 --> 02:37:48,020

the Centaur and the atlas five they got

3627

02:37:54,410 --> 02:37:51,720

jpss2 and the proper orbit and then they

3628

02:37:57,349 --> 02:37:54,420

steered lofted after de-orbiting from

3629

02:38:00,410 --> 02:37:57,359

the JP SS2 orbit coming down a little

3630

02:38:02,809 --> 02:38:00,420

bit and then releasing lofted separating

3631

02:38:05,570 --> 02:38:02,819

from the Centaur and we were able to see

3632

02:38:09,410 --> 02:38:05,580

and Visually confirm that we had full

3633

02:38:12,410 --> 02:38:09,420

inflation of the the return vehicle as

3634

02:38:15,530 --> 02:38:12,420

well as good separation yeah so we've

3635

02:38:17,690 --> 02:38:15,540

seen the videos uh so far everything is

3636

02:38:20,030 --> 02:38:17,700

working just as as we hoped it would

3637

02:38:24,110 --> 02:38:20,040

we've payloaded good payload adapter

3638

02:38:26,389 --> 02:38:24,120

separation good inflation good spin up

3639

02:38:29,510 --> 02:38:26,399

and then we saw the the Centaur release

3640

02:38:31,610 --> 02:38:29,520

the lofted spacecraft and it is Falling

3641

02:38:34,790 --> 02:38:31,620

Towards Earth right now it's impressive

3642

02:38:39,050 --> 02:38:34,800

I know that this is the first time that

3643

02:38:42,349 --> 02:38:39,060

this this technology has been taken into

3644

02:38:44,389 --> 02:38:42,359

orbit in space and then returned so I

3645

02:38:47,690 --> 02:38:44,399

know that there's a lot of anticipation

3646

02:38:49,849 --> 02:38:47,700

and uh you know uh maybe some some

3647

02:38:53,510 --> 02:38:49,859

anxious feelings about the return

3648

02:38:55,190 --> 02:38:53,520

yes we were very uh well there there was

3649

02:38:57,650 --> 02:38:55,200

some discussion and within the group

3650

02:38:59,630 --> 02:38:57,660

about what how it would inflate because

3651
02:39:03,050 --> 02:38:59,640
uh We've we've never seen this inflate

3652
02:39:05,210 --> 02:39:03,060
uh in an orbital sense and so we were

3653
02:39:06,770 --> 02:39:05,220
very happy to see that it inflated and

3654
02:39:09,349 --> 02:39:06,780
there were no snags or anything this was

3655
02:39:11,389 --> 02:39:09,359
one of the highest risks uh parts of the

3656
02:39:14,030 --> 02:39:11,399
mission exactly and there we see the

3657
02:39:17,330 --> 02:39:14,040
replay of the moment of Separation The

3658
02:39:19,610 --> 02:39:17,340
lofted Return vehicle coming off of the

3659
02:39:22,670 --> 02:39:19,620
Centaur heading back towards the Earth

3660
02:39:25,849 --> 02:39:22,680
this is not a view you often see Centaur

3661
02:39:28,849 --> 02:39:25,859
coming to a standstill after putting

3662
02:39:30,650 --> 02:39:28,859
lofted back and there it is falling back

3663
02:39:32,570 --> 02:39:30,660

to Earth

3664

02:39:35,210 --> 02:39:32,580

yeah so we're falling towards Earth

3665

02:39:38,150 --> 02:39:35,220

we're gonna start accelerating

3666

02:39:40,849 --> 02:39:38,160

um and then we'll uh we'll enter Earth

3667

02:39:43,309 --> 02:39:40,859

atmosphere around Mach 25 and then

3668

02:39:45,770 --> 02:39:43,319

continue uh accelerating until we hit

3669

02:39:47,750 --> 02:39:45,780

the atmosphere uh sufficiently uh to

3670

02:39:50,030 --> 02:39:47,760

begin slowing us down as an engineer

3671

02:39:52,370 --> 02:39:50,040

Sean when you look at that that looks

3672

02:39:55,309 --> 02:39:52,380

like lofted when it was fully inflated

3673

02:39:59,150 --> 02:39:55,319

on the ground we don't see any snags it

3674

02:40:01,190 --> 02:39:59,160

looks like completely uh a complete in

3675

02:40:02,990 --> 02:40:01,200

uh inflation yeah it looks absolutely

3676

02:40:05,210 --> 02:40:03,000

perfect I don't think we could have

3677

02:40:07,610 --> 02:40:05,220

hoped for anything anything better than

3678

02:40:11,510 --> 02:40:07,620

that and of course lofted inflated with

3679

02:40:13,550 --> 02:40:11,520

compressed nitrogen gas

3680

02:40:16,130 --> 02:40:13,560

big moment for the team there and we

3681

02:40:18,889 --> 02:40:16,140

know that uh certainly there's got to be

3682

02:40:21,290 --> 02:40:18,899

uh some some very proud Engineers right

3683

02:40:22,849 --> 02:40:21,300

now in the lofta team to see that uh the

3684

02:40:25,670 --> 02:40:22,859

initial part of this operation is

3685

02:40:27,650 --> 02:40:25,680

confirmed uh to be on its way absolutely

3686

02:40:29,570 --> 02:40:27,660

well we're very excited

3687

02:40:32,030 --> 02:40:29,580

all right we'll continue to monitor the

3688

02:40:33,710 --> 02:40:32,040

progress of Lofton as she falls back to

3689

02:40:35,809 --> 02:40:33,720

Earth in the meantime let's send it back

3690

02:40:37,790 --> 02:40:35,819

to Megan really cool to see that video

3691

02:40:41,690 --> 02:40:37,800

not just animations again that real

3692

02:40:44,090 --> 02:40:41,700

video of a significant part in this test

3693

02:40:45,950 --> 02:40:44,100

demonstration today so NASA has long

3694

02:40:47,990 --> 02:40:45,960

time been a technological leader let's

3695

02:40:49,969 --> 02:40:48,000

go back to Langley Research Center in

3696

02:40:55,250 --> 02:40:49,979

Virginia where Angela caring is with the

3697

02:41:00,469 --> 02:40:58,010

thanks so much Megan I'm here with Rohan

3698

02:41:02,330 --> 02:41:00,479

Deshmukh the flight mechanics lead for

3699

02:41:03,530 --> 02:41:02,340

the Loft demonstration Rohan good

3700

02:41:06,050 --> 02:41:03,540

morning it's so great to have you here

3701
02:41:07,610 --> 02:41:06,060
with us good morning now Rohan I know

3702
02:41:10,190 --> 02:41:07,620
that you've been mapping the trajectory

3703
02:41:11,809 --> 02:41:10,200
of the lofted re-entry vehicle from its

3704
02:41:14,929 --> 02:41:11,819
separation from the rocket all the way

3705
02:41:16,730 --> 02:41:14,939
to its eventual re-entrance into Earth's

3706
02:41:18,889 --> 02:41:16,740
atmosphere so can you tell me a bit

3707
02:41:21,230 --> 02:41:18,899
about how that data is going to help the

3708
02:41:23,389 --> 02:41:21,240
recovery team to find the re-entry

3709
02:41:25,849 --> 02:41:23,399
vehicle yeah so we have a recovery team

3710
02:41:28,670 --> 02:41:25,859
on a boat off the coast of Hawaii and

3711
02:41:30,770 --> 02:41:28,680
they're ready to recover the lofted

3712
02:41:32,330 --> 02:41:30,780
vehicle and the data recorder so by

3713
02:41:34,969 --> 02:41:32,340

being able to simulate our trajectory

3714

02:41:36,710 --> 02:41:34,979

with the latest data we get we're able

3715

02:41:38,210 --> 02:41:36,720

to basically improve our Splashdown

3716

02:41:40,429 --> 02:41:38,220

Point predictions and then relay that

3717

02:41:41,809 --> 02:41:40,439

over to the recovery team so that they

3718

02:41:42,830 --> 02:41:41,819

can it can help with their recovery

3719

02:41:44,630 --> 02:41:42,840

efforts

3720

02:41:46,429 --> 02:41:44,640

that'll be really great I know that

3721

02:41:48,730 --> 02:41:46,439

recovering the vehicle is going to get

3722

02:41:51,290 --> 02:41:48,740

us back a lot of really exciting data

3723

02:41:54,230 --> 02:41:51,300

what piece of that data are you most

3724

02:41:56,450 --> 02:41:54,240

excited to see yeah so as as a person

3725

02:41:58,610 --> 02:41:56,460

who works on flight mechanics I'm

3726

02:42:00,349 --> 02:41:58,620

definitely biased to getting the GPS

3727

02:42:02,450 --> 02:42:00,359

data so we can reconstruct the

3728

02:42:04,309 --> 02:42:02,460

trajectory see how well it flew and then

3729

02:42:07,130 --> 02:42:04,319

compare that against our simulation

3730

02:42:08,690 --> 02:42:07,140

models so we can you know kind of see uh

3731

02:42:10,610 --> 02:42:08,700

is there a simulation did we hit the

3732

02:42:12,590 --> 02:42:10,620

bullseye or do we need to you know kind

3733

02:42:14,389 --> 02:42:12,600

of improve upon it but yeah definitely

3734

02:42:15,950 --> 02:42:14,399

looking for that GPS data it'll

3735

02:42:17,630 --> 02:42:15,960

definitely be a thrill to get back all

3736

02:42:19,610 --> 02:42:17,640

of that data start crunching those

3737

02:42:22,849 --> 02:42:19,620

numbers and for now we're going to send

3738

02:42:25,969 --> 02:42:22,859

it back over to you thanks Rohan

3739

02:42:29,030 --> 02:42:25,979

lofted in jpss2 were both payloads on

3740

02:42:31,309 --> 02:42:29,040

today's 100th LSP launch recently

3741

02:42:36,620 --> 02:42:31,319

another LSP Mission launched the world's

3742

02:42:41,970 --> 02:42:40,500

[Music]

3743

02:42:43,990 --> 02:42:41,980

[Applause]

3744

02:42:47,270 --> 02:42:44,000

[Music]

3745

02:42:50,330 --> 02:42:47,280

on NASA's first planetary defense test

3746

02:42:52,610 --> 02:42:50,340

to intentionally crash into an asteroid

3747

02:42:54,290 --> 02:42:52,620

in my time during LSP the most

3748

02:42:56,030 --> 02:42:54,300

significant demonstration of technology

3749

02:42:57,950 --> 02:42:56,040

that I've seen has to be the dart

3750

02:43:00,950 --> 02:42:57,960

Mission the double asteroid redirect

3751
02:43:05,570 --> 02:43:03,590
essentially we launched a spacecraft it

3752
02:43:08,150 --> 02:43:05,580
traveled over 6 million miles to an

3753
02:43:09,889 --> 02:43:08,160
asteroid and it crashed into it this was

3754
02:43:11,630 --> 02:43:09,899
Mankind's first attempt to prove that

3755
02:43:13,429 --> 02:43:11,640
we're smarter than the dinosaurs the

3756
02:43:15,050 --> 02:43:13,439
dinosaurs had a horrible Space Program

3757
02:43:16,730 --> 02:43:15,060
they had no way to protect themselves

3758
02:43:19,070 --> 02:43:16,740
against an asteroid coming in to wipe

3759
02:43:21,349 --> 02:43:19,080
them out first of all this type of stuff

3760
02:43:23,150 --> 02:43:21,359
you see in a movie so just starting from

3761
02:43:24,950 --> 02:43:23,160
that I think that's really unique and

3762
02:43:26,510 --> 02:43:24,960
really cool that it's not actually a

3763
02:43:28,849 --> 02:43:26,520

movie we're doing this in real life like

3764

02:43:30,349 --> 02:43:28,859

we do this for work my favorite Mission

3765

02:43:33,469 --> 02:43:30,359

even though that's a difficult question

3766

02:43:35,330 --> 02:43:33,479

to answer has to be the mer missions the

3767

02:43:38,230 --> 02:43:35,340

Mars explosion Rovers that spirit and

3768

02:43:40,429 --> 02:43:38,240

opportunity we launched those in 2003.

3769

02:43:41,929 --> 02:43:40,439

that happened to be a mission that I

3770

02:43:44,030 --> 02:43:41,939

worked from beginning to end as a

3771

02:43:46,309 --> 02:43:44,040

mission manager I got to meet really

3772

02:43:48,590 --> 02:43:46,319

exciting people I got to meet the

3773

02:43:51,530 --> 02:43:48,600

scientists involved I still have friends

3774

02:43:53,750 --> 02:43:51,540

that I made back then from JPL and

3775

02:43:55,550 --> 02:43:53,760

headquarters and overall I think it's

3776

02:43:57,230 --> 02:43:55,560

the one that always stays in the back of

3777

02:43:59,809 --> 02:43:57,240

my mind as my favorite mission

3778

02:44:02,450 --> 02:43:59,819

so I think I would pick the new Star

3779

02:44:05,510 --> 02:44:02,460

Mission it was launched out of kwajalein

3780

02:44:07,429 --> 02:44:05,520

I had never been in that part of the

3781

02:44:09,110 --> 02:44:07,439

world before and by the time you get

3782

02:44:11,330 --> 02:44:09,120

there and you're set up with the whole

3783

02:44:13,670 --> 02:44:11,340

team you're very Consolidated and you're

3784

02:44:15,950 --> 02:44:13,680

very slimmed down to just the absolute

3785

02:44:18,410 --> 02:44:15,960

necessary functions to support the

3786

02:44:20,330 --> 02:44:18,420

mission didn't have the connection back

3787

02:44:22,429 --> 02:44:20,340

to the mainland that you would normally

3788

02:44:24,349 --> 02:44:22,439

have and so you all had to get together

3789

02:44:27,290 --> 02:44:24,359

and work all the problems together you

3790

02:44:28,670 --> 02:44:27,300

had no cars you had to ride bicycles so

3791

02:44:29,750 --> 02:44:28,680

there were all kinds of not just the

3792

02:44:31,730 --> 02:44:29,760

challenges with the mission but

3793

02:44:34,070 --> 02:44:31,740

challenges with the living environment

3794

02:44:36,370 --> 02:44:34,080

and what you had to do so that one is

3795

02:44:38,450 --> 02:44:36,380

pretty memorable to me

3796

02:44:41,090 --> 02:44:38,460

less than 10 minutes away from

3797

02:44:43,429 --> 02:44:41,100

atmospheric re-entry the Moment of Truth

3798

02:44:45,110 --> 02:44:43,439

for this Innovative heat shield Daryl

3799

02:44:47,030 --> 02:44:45,120

nail and Sean Hancock are live here at

3800

02:44:49,490 --> 02:44:47,040

Vandenberg and will walk us all the way

3801
02:44:50,750 --> 02:44:49,500
through splash down off the coast of

3802
02:44:53,090 --> 02:44:50,760
Hawaii

3803
02:44:55,429 --> 02:44:53,100
thank you Megan and it's been exciting

3804
02:44:58,130 --> 02:44:55,439
so far as we've been uh watching the

3805
02:45:01,429 --> 02:44:58,140
replays of lofted separating from the

3806
02:45:03,469 --> 02:45:01,439
Centaur upper stage and falling back to

3807
02:45:06,650 --> 02:45:03,479
Earth we've seen a number of amazing

3808
02:45:08,650 --> 02:45:06,660
Milestones reached as you look now at

3809
02:45:11,389 --> 02:45:08,660
software that is tracking those

3810
02:45:14,270 --> 02:45:11,399
Milestones you can see that we are

3811
02:45:18,230 --> 02:45:14,280
currently uh

3812
02:45:20,750 --> 02:45:18,240
past the separation point and the beacon

3813
02:45:24,469 --> 02:45:20,760

has begun transmitting I'm with Sean

3814

02:45:26,690 --> 02:45:24,479

Hancock engineer with lofted and you're

3815

02:45:29,450 --> 02:45:26,700

looking right here at the release of the

3816

02:45:32,929 --> 02:45:29,460

cover and inflation of Lofton

3817

02:45:35,770 --> 02:45:32,939

yes that's a beautiful sight uh you know

3818

02:45:38,330 --> 02:45:35,780

this is this was one of the the the the

3819

02:45:40,790 --> 02:45:38,340

worrisome parts of the mission that we

3820

02:45:42,770 --> 02:45:40,800

would have an issue inflating uh and

3821

02:45:45,410 --> 02:45:42,780

wouldn't inflate but that was a perfect

3822

02:45:49,190 --> 02:45:45,420

inflation you can see that we're fully

3823

02:45:52,790 --> 02:45:49,200

inflated the shape is exactly what what

3824

02:45:55,550 --> 02:45:52,800

we expected and I'm very excited a lot

3825

02:45:58,490 --> 02:45:55,560

of straps that you see in there later in

3826

02:46:00,830 --> 02:45:58,500

that video it actually kind of

3827

02:46:03,710 --> 02:46:00,840

fully inflated right it was a bit of a

3828

02:46:07,670 --> 02:46:03,720

partial inflation yeah

3829

02:46:09,290 --> 02:46:07,680

like when you're I liken it to inflating

3830

02:46:10,730 --> 02:46:09,300

an inflatable mattress it's the only

3831

02:46:12,170 --> 02:46:10,740

thing I can kind of liken it to you get

3832

02:46:13,849 --> 02:46:12,180

it partially going and maybe there might

3833

02:46:16,190 --> 02:46:13,859

be a kink in some something somewhere

3834

02:46:18,710 --> 02:46:16,200

and then poof out it went the rest of

3835

02:46:20,870 --> 02:46:18,720

the way to full inflation yeah so uh

3836

02:46:22,730 --> 02:46:20,880

when when the bag cutter is released

3837

02:46:26,330 --> 02:46:22,740

there's a little bit of extra air left

3838

02:46:30,950 --> 02:46:26,340

or nitrogen left inside the inside the

3839

02:46:32,690 --> 02:46:30,960

uh inflatable and so uh with no uh no as

3840

02:46:35,090 --> 02:46:32,700

a vacuum in space no pressure to keep

3841

02:46:37,190 --> 02:46:35,100

that uh keep that compacted anymore it

3842

02:46:38,750 --> 02:46:37,200

just Puffs Puffs out and then we start

3843

02:46:40,490 --> 02:46:38,760

flowing the air and then it just

3844

02:46:42,290 --> 02:46:40,500

immediately takes shape and there it is

3845

02:46:44,990 --> 02:46:42,300

you just saw the moment of separation

3846

02:46:47,270 --> 02:46:45,000

from the Centaur upper stage and it is

3847

02:46:49,969 --> 02:46:47,280

fully inflated here just like Sean was

3848

02:46:53,270 --> 02:46:49,979

talking about and you can see the straps

3849

02:46:57,410 --> 02:46:53,280

that combine and hold all those toroids

3850

02:46:59,870 --> 02:46:57,420

the donut uh you know cylindrical uh

3851

02:47:01,490 --> 02:46:59,880

inflatable part of the heat shield holds

3852

02:47:03,650 --> 02:47:01,500

them all together you can see them tight

3853

02:47:05,570 --> 02:47:03,660

and I'm not an engineer Sean but as you

3854

02:47:07,490 --> 02:47:05,580

you looked at it that looked like that

3855

02:47:09,110 --> 02:47:07,500

was in good shape to return to Earth it

3856

02:47:12,410 --> 02:47:09,120

looked it looked perfect

3857

02:47:15,290 --> 02:47:12,420

as it comes down it is a six meter wide

3858

02:47:16,510 --> 02:47:15,300

AeroShell and so the reason for that

3859

02:47:19,130 --> 02:47:16,520

quite large

3860

02:47:21,530 --> 02:47:19,140

is to catch a lot of the atmosphere

3861

02:47:25,510 --> 02:47:21,540

which it is getting ready to do right

3862

02:47:28,010 --> 02:47:25,520

now right and slow down to a substantial

3863

02:47:31,610 --> 02:47:28,020

scrub off a substantial amount of speed

3864

02:47:33,290 --> 02:47:31,620

take on heat of large art objects that

3865

02:47:34,790 --> 02:47:33,300

are coming back I thought it was

3866

02:47:36,650 --> 02:47:34,800

interesting you know you you made the

3867

02:47:39,530 --> 02:47:36,660

comment and it was quite appropriate

3868

02:47:42,349 --> 02:47:39,540

when we were off air we've got a moon

3869

02:47:47,450 --> 02:47:42,359

launch coming up right on November 16th

3870

02:47:49,429 --> 02:47:47,460

Wednesday at 104 a.m Eastern Time 404

3871

02:47:52,190 --> 02:47:49,439

a.m Pacific time we're going to launch

3872

02:47:54,770 --> 02:47:52,200

the space launch system and Orion to the

3873

02:47:57,290 --> 02:47:54,780

moon but the technology that we just saw

3874

02:47:59,809 --> 02:47:57,300

released in that video

3875

02:48:03,410 --> 02:47:59,819

that's going to help us get stuff back

3876

02:48:07,370 --> 02:48:03,420

from the Moon absolutely uh the uh

3877

02:48:12,110 --> 02:48:07,380

the high-end technology will serve as as

3878

02:48:15,349 --> 02:48:12,120

a technology to deliver uh payloads back

3879

02:48:18,410 --> 02:48:15,359

from CIS lunar space so uh back from the

3880

02:48:20,990 --> 02:48:18,420

Moon into Earth's atmosphere where we

3881

02:48:23,330 --> 02:48:21,000

can either put it put it in a low earth

3882

02:48:25,490 --> 02:48:23,340

orbit or or even bring it back down to

3883

02:48:27,410 --> 02:48:25,500

the surface so it's really the the

3884

02:48:29,050 --> 02:48:27,420

second part of the story for the for the

3885

02:48:32,090 --> 02:48:29,060

Artemis um

3886

02:48:34,610 --> 02:48:32,100

absolutely and and we're watching this

3887

02:48:37,550 --> 02:48:34,620

technology being developed at this very

3888

02:48:40,130 --> 02:48:37,560

moment as Engineers are learning and

3889

02:48:43,190 --> 02:48:40,140

looking to gather data from the latest

3890

02:48:44,929 --> 02:48:43,200

iteration of their AeroShell and you're

3891

02:48:46,130 --> 02:48:44,939

looking at the team at the Langley

3892

02:48:48,349 --> 02:48:46,140

Research Center

3893

02:48:51,530 --> 02:48:48,359

in Hampton Virginia

3894

02:48:54,250 --> 02:48:51,540

as they await the data to come in

3895

02:48:56,750 --> 02:48:54,260

yeah don't they look very excited

3896

02:48:58,670 --> 02:48:56,760

they look focused I know they've been

3897

02:49:02,270 --> 02:48:58,680

working uh they've been working super

3898

02:49:04,490 --> 02:49:02,280

hard and so um yeah I'm sure there are

3899

02:49:06,349 --> 02:49:04,500

eagerly anticipating receiving some data

3900

02:49:08,510 --> 02:49:06,359

from from our spacecraft let's talk

3901
02:49:11,450 --> 02:49:08,520
about that just a little bit Sean the

3902
02:49:13,250 --> 02:49:11,460
data that is being transmitted from the

3903
02:49:17,690 --> 02:49:13,260
lofted return vehicle

3904
02:49:19,969 --> 02:49:17,700
it is sent from a beacon yes and it uh

3905
02:49:24,110 --> 02:49:19,979
first of all has some basic data like

3906
02:49:26,870 --> 02:49:24,120
position location but also some uh a

3907
02:49:29,809 --> 02:49:26,880
little bit more robust data that comes

3908
02:49:31,969 --> 02:49:29,819
through the Iridium satellite system and

3909
02:49:34,250 --> 02:49:31,979
then into this particular program that

3910
02:49:36,410 --> 02:49:34,260
we're looking at now which is uh marking

3911
02:49:41,389 --> 02:49:36,420
us through the milestones and there it

3912
02:49:43,969 --> 02:49:41,399
is uh another page from that software

3913
02:49:46,610 --> 02:49:43,979

we haven't gotten data yet but there's a

3914

02:49:49,670 --> 02:49:46,620

reason for that that Beacon is not

3915

02:49:51,170 --> 02:49:49,680

exactly it's hard to lock on as it's

3916

02:49:54,950 --> 02:49:51,180

kind of tumbling back down to the Earth

3917

02:49:57,230 --> 02:49:54,960

correct yeah so the the we the real-time

3918

02:49:59,030 --> 02:49:57,240

Beacon is sending a very minimal data

3919

02:50:01,849 --> 02:49:59,040

set so that we can track the progress of

3920

02:50:03,770 --> 02:50:01,859

the spacecraft uh through the flight uh

3921

02:50:05,990 --> 02:50:03,780

if it sends that data through the

3922

02:50:08,809 --> 02:50:06,000

Iridium satellite Network and that

3923

02:50:11,270 --> 02:50:08,819

requires a line of sight from an antenna

3924

02:50:13,790 --> 02:50:11,280

on the back portion of our our vehicle

3925

02:50:16,610 --> 02:50:13,800

up to the satellite and then it has to

3926
02:50:18,469 --> 02:50:16,620
have a 30 signal strength and then we

3927
02:50:20,830 --> 02:50:18,479
have to remember we've already seen that

3928
02:50:23,690 --> 02:50:20,840
our spacecraft is rotating at three

3929
02:50:26,349 --> 02:50:23,700
revolutions per minute and there's a bit

3930
02:50:29,690 --> 02:50:26,359
of a wobble uh or it's called mutation

3931
02:50:33,170 --> 02:50:29,700
associated with with with our flight and

3932
02:50:34,849 --> 02:50:33,180
so it's fully expected that uh you know

3933
02:50:36,950 --> 02:50:34,859
we will have limp we we could have

3934
02:50:39,889 --> 02:50:36,960
limited data through the real-time

3935
02:50:42,410 --> 02:50:39,899
Beacon and we're okay with that

3936
02:50:44,990 --> 02:50:42,420
we're okay with that because we are

3937
02:50:47,330 --> 02:50:45,000
recording uh the full scope of data and

3938
02:50:50,090 --> 02:50:47,340

the video on two data recorders that

3939

02:50:51,830 --> 02:50:50,100

reside within the in the vehicle one of

3940

02:50:54,170 --> 02:50:51,840

those is an ejectable data recorder and

3941

02:50:56,570 --> 02:50:54,180

it will be ejected uh from from the

3942

02:50:58,790 --> 02:50:56,580

vehicle after uh work we're through with

3943

02:51:01,370 --> 02:50:58,800

the experiment and it looks like we just

3944

02:51:04,429 --> 02:51:01,380

got the word for go for the re-entry

3945

02:51:07,969 --> 02:51:04,439

interface yes so I just heard uh we're

3946

02:51:11,450 --> 02:51:07,979

at re-entry interface so uh re-entry

3947

02:51:14,630 --> 02:51:11,460

interface has defined 125 kilometers or

3948

02:51:16,670 --> 02:51:14,640

410 000 feet and this is the point where

3949

02:51:21,170 --> 02:51:16,680

we start to experience the effects of

3950

02:51:22,790 --> 02:51:21,180

Earth's atmosphere so the TPS on the

3951
02:51:25,849 --> 02:51:22,800
AeroShell is going to start heating up

3952
02:51:27,710 --> 02:51:25,859
from this point on we're not quite deep

3953
02:51:30,170 --> 02:51:27,720
enough into Earth's atmosphere yet the

3954
02:51:31,490 --> 02:51:30,180
the the density is sufficient to slow us

3955
02:51:32,929 --> 02:51:31,500
down so we're going to continue

3956
02:51:35,630 --> 02:51:32,939
accelerating

3957
02:51:37,910 --> 02:51:35,640
we're going to accelerate up to around

3958
02:51:39,950 --> 02:51:37,920
Mach 29 at that point the Earth's

3959
02:51:42,349 --> 02:51:39,960
atmosphere will be dense enough that it

3960
02:51:45,290 --> 02:51:42,359
will start to slow us down and we expect

3961
02:51:48,230 --> 02:51:45,300
that lofted is about 78 miles above the

3962
02:51:50,330 --> 02:51:48,240
Earth's surface coming down and just

3963
02:51:52,250 --> 02:51:50,340

starting to heat up

3964

02:51:55,070 --> 02:51:52,260

um we just got a call out that we would

3965

02:51:58,070 --> 02:51:55,080

expect at this point in time that we've

3966

02:51:59,870 --> 02:51:58,080

reached about 10 percent of peak heating

3967

02:52:02,929 --> 02:51:59,880

yeah so that means that we're starting

3968

02:52:04,969 --> 02:52:02,939

our uh our temperature pulse so we have

3969

02:52:06,710 --> 02:52:04,979

two two pulses that we're planning to

3970

02:52:10,130 --> 02:52:06,720

experience a heat pulse where the

3971

02:52:12,050 --> 02:52:10,140

temperature on the on the air show goes

3972

02:52:14,210 --> 02:52:12,060

up rapidly and then falls back down

3973

02:52:16,910 --> 02:52:14,220

again and then there's a pressure pulse

3974

02:52:18,889 --> 02:52:16,920

where the dynamic pressure from from the

3975

02:52:20,990 --> 02:52:18,899

velocity and through the atmosphere uh

3976
02:52:23,630 --> 02:52:21,000
creates a load on on the surface of the

3977
02:52:29,690 --> 02:52:27,650
we have been flying for an hour and 47

3978
02:52:48,769 --> 02:52:29,700
minutes that started us off with the

3979
02:52:54,769 --> 02:52:52,309
we're awaiting that first packet of data

3980
02:52:58,130 --> 02:52:54,779
we didn't get it early on when we

3981
02:53:00,650 --> 02:52:58,140
expected it Sean so still awaiting right

3982
02:53:02,870 --> 02:53:00,660
for that first packet correct yeah we're

3983
02:53:09,530 --> 02:53:02,880
still awaiting the the first uh first

3984
02:53:16,309 --> 02:53:12,170
and we just got word that the

3985
02:53:18,410 --> 02:53:16,319
um the recovery ship the Kahana II

3986
02:53:22,429 --> 02:53:18,420
is in place

3987
02:53:25,190 --> 02:53:22,439
and we are expecting that at this moment

3988
02:53:27,830 --> 02:53:25,200

we reached Peak heating on the lofted

3989

02:53:29,750 --> 02:53:27,840

return vehicle

3990

02:53:32,090 --> 02:53:29,760

now we don't have the data confirmation

3991

02:53:35,389 --> 02:53:32,100

it's important to point out

3992

02:53:37,309 --> 02:53:35,399

but in the timeline of events

3993

02:53:40,490 --> 02:53:37,319

were expected that we've reached Max Q

3994

02:53:43,610 --> 02:53:40,500

the maximum Dynamic pressure on the

3995

02:53:45,230 --> 02:53:43,620

return vehicle okay so yeah we've uh so

3996

02:53:47,450 --> 02:53:45,240

we've passed through Peak heating at

3997

02:53:49,309 --> 02:53:47,460

this point at least predicted Peak

3998

02:53:51,309 --> 02:53:49,319

heating because as you as you mentioned

3999

02:53:53,929 --> 02:53:51,319

we don't have data to confirm that yet

4000

02:53:56,510 --> 02:53:53,939

but that's the point at which the

4001
02:53:58,790 --> 02:53:56,520
vehicle has

4002
02:54:02,030 --> 02:53:58,800
has maximized

4003
02:54:04,790 --> 02:54:02,040
um the rate at which it converts uh its

4004
02:54:06,590 --> 02:54:04,800
velocity into thermal energy and we

4005
02:54:08,929 --> 02:54:06,600
expect a maximum heat rate of about 40

4006
02:54:12,050 --> 02:54:08,939
watts per centimeter squared and then

4007
02:54:14,630 --> 02:54:12,060
after we hit the max heat rate we expect

4008
02:54:17,210 --> 02:54:14,640
the temperature to continue to rise for

4009
02:54:20,170 --> 02:54:17,220
about another 17 seconds on the surface

4010
02:54:23,090 --> 02:54:20,180
of the of the AeroShell

4011
02:54:26,450 --> 02:54:23,100
and hit somewhere around 2600 degrees

4012
02:54:28,429 --> 02:54:26,460
Celsius and then I just heard an

4013
02:54:31,910 --> 02:54:28,439

announcement that were were through Max

4014

02:54:33,769 --> 02:54:31,920

Q as well and that's our maximum

4015

02:54:37,309 --> 02:54:33,779

deceleration so we're at we're

4016

02:54:40,250 --> 02:54:37,319

experiencing 9 G's and we've slowed from

4017

02:54:45,590 --> 02:54:40,260

Mach 29 all the way down to uh to mach

4018

02:54:45,600 --> 02:54:53,690

we are currently one hour and 50 minutes

4019

02:54:58,190 --> 02:54:55,790

into the mission and we are tracking

4020

02:55:01,010 --> 02:54:58,200

lofted's return

4021

02:55:03,889 --> 02:55:01,020

the return vehicle

4022

02:55:13,429 --> 02:55:06,110

lofted stands for low earth orbit flight

4023

02:55:13,439 --> 02:55:19,370

at this moment we would have uh expected

4024

02:55:26,750 --> 02:55:21,590

that we're back down to 10 of peak

4025

02:55:30,530 --> 02:55:29,210

and just now reached the Milestone of

4026

02:55:33,590 --> 02:55:30,540

predicted

4027

02:55:35,510 --> 02:55:33,600

end of heat pulse

4028

02:55:38,150 --> 02:55:35,520

so this is the end of the significant

4029

02:55:40,790 --> 02:55:38,160

hearing it has gone through

4030

02:55:42,410 --> 02:55:40,800

the atmosphere we just got an rtb

4031

02:55:47,269 --> 02:55:42,420

package and really heated up and just

4032

02:55:51,170 --> 02:55:49,070

Sean's dialed in with the software there

4033

02:55:57,110 --> 02:55:51,180

you can see some uh Engineers pretty

4034

02:55:57,120 --> 02:56:06,889

oh yeah we're we're in business

4035

02:56:10,849 --> 02:56:08,690

yeah so at this point we're really

4036

02:56:12,650 --> 02:56:10,859

through the hard part of the mission

4037

02:56:13,849 --> 02:56:12,660

um we've we've gone through the heat the

4038

02:56:16,670 --> 02:56:13,859

heat pulse we've gone through the

4039

02:56:19,849 --> 02:56:16,680

pressure pulse and uh you know we're

4040

02:56:22,490 --> 02:56:19,859

we're just slowing down

4041

02:56:30,050 --> 02:56:22,500

um until we uh until we go to the

4042

02:56:30,060 --> 02:56:34,370

okay so that

4043

02:56:34,380 --> 02:56:40,550

that

4044

02:56:40,560 --> 02:56:44,630

we just got the call out

4045

02:56:50,809 --> 02:56:47,210

that they predicted the end of the

4046

02:56:53,690 --> 02:56:50,819

experiment So Below Mach 1. so that

4047

02:56:55,370 --> 02:56:53,700

um that packet that we received from the

4048

02:56:57,650 --> 02:56:55,380

real-time Beacon we got confirmation

4049

02:56:59,990 --> 02:56:57,660

that the arrow shell restraint cover cut

4050

02:57:01,070 --> 02:57:00,000

which we obviously we saw

4051

02:57:09,050 --> 02:57:01,080

um

4052

02:57:14,030 --> 02:57:09,060

so that's that's a plus we we have uh

4053

02:57:18,889 --> 02:57:16,969

we have separation of the the spacecraft

4054

02:57:20,450 --> 02:57:18,899

and we've already begun venting our

4055

02:57:23,030 --> 02:57:20,460

tanks which

4056

02:57:24,889 --> 02:57:23,040

um were that prepares us for a splash

4057

02:57:27,170 --> 02:57:24,899

down into the into the ocean we vent the

4058

02:57:29,210 --> 02:57:27,180

tanks to get rid of the excess nitrogen

4059

02:57:32,750 --> 02:57:29,220

that are in the tanks that makes it safe

4060

02:57:36,590 --> 02:57:32,760

for the recovery ship to approach great

4061

02:57:39,889 --> 02:57:36,600

news Sean as lofted has confirmed with

4062

02:57:45,530 --> 02:57:42,650

it was a successful separation inflation

4063

02:57:50,750 --> 02:57:45,540

return

4064

02:57:55,730 --> 02:57:53,570

we're going to get some parachutes out

4065

02:57:57,710 --> 02:57:55,740

and we're getting more Pat we're getting

4066

02:58:00,590 --> 02:57:57,720

more real-time Beacon

4067

02:58:04,610 --> 02:58:00,600

um data now we've we're we're up to uh

4068

02:58:06,590 --> 02:58:04,620

seven seven uh Transmissions

4069

02:58:09,050 --> 02:58:06,600

so this is very exciting that's

4070

02:58:11,090 --> 02:58:09,060

excellent news Sean seven packets I know

4071

02:58:13,190 --> 02:58:11,100

you were concerned about amount of data

4072

02:58:16,010 --> 02:58:13,200

that was going to come in uh that right

4073

02:58:18,889 --> 02:58:16,020

there that's that's fantastic

4074

02:58:20,809 --> 02:58:18,899

yes got some smiling Engineers there you

4075

02:58:26,570 --> 02:58:20,819

can see the folks back at Langley are

4076

02:58:31,849 --> 02:58:28,969

well that's got to be a lot better than

4077

02:58:33,469 --> 02:58:31,859

uh than what was expected oh yeah I

4078

02:58:36,110 --> 02:58:33,479

think I think we're checking all the

4079

02:58:38,330 --> 02:58:36,120

boxes here today I think um

4080

02:58:41,030 --> 02:58:38,340

you know everything everything seems to

4081

02:58:43,190 --> 02:58:41,040

be working exactly as as we hoped it

4082

02:58:48,110 --> 02:58:46,190

and so what what is the the latest and

4083

02:58:50,870 --> 02:58:48,120

the last data packet uh telling you as

4084

02:58:53,510 --> 02:58:50,880

you look through the Software System

4085

02:58:58,370 --> 02:58:56,090

so I just heard that our toroid

4086

02:59:02,090 --> 02:58:58,380

pressures are nominal that means that

4087

02:59:07,190 --> 02:59:02,100

our our vehicle is

4088

02:59:11,990 --> 02:59:09,650

the pressures that

4089

02:59:14,030 --> 02:59:12,000

the pressures and uh that we expected

4090

02:59:15,349 --> 02:59:14,040

and that also means that the

4091

02:59:18,050 --> 02:59:15,359

temperatures are in the range that we

4092

02:59:20,630 --> 02:59:18,060

expected as well so and now we're

4093

02:59:23,690 --> 02:59:20,640

expecting the ejection of the data

4094

02:59:26,450 --> 02:59:23,700

module Sean and this is one of the key

4095

02:59:28,309 --> 02:59:26,460

components if anything you want the data

4096

02:59:30,769 --> 02:59:28,319

from what happened absolutely the whole

4097

02:59:34,010 --> 02:59:30,779

point of the the flight experiment is to

4098

02:59:35,870 --> 02:59:34,020

get the data we have a real-time Beacon

4099

02:59:37,910 --> 02:59:35,880

that is sending very limited data during

4100

02:59:39,469 --> 02:59:37,920

the flight that we can check just on a

4101
02:59:41,210 --> 02:59:39,479
performance of this vehicle and then

4102
02:59:43,670 --> 02:59:41,220
aboard the vehicle we have two data

4103
02:59:46,730 --> 02:59:43,680
recorders internal data recorder and an

4104
02:59:50,630 --> 02:59:46,740
ejectable data recorder that record the

4105
02:59:53,290 --> 02:59:50,640
full Suite of of scientific data a video

4106
02:59:56,450 --> 02:59:53,300
uh Health Data for the for the vehicles

4107
02:59:59,030 --> 02:59:56,460
and the ejectable data recorder when we

4108
03:00:02,690 --> 02:59:59,040
get around fifty thousand feet it's

4109
03:00:06,349 --> 03:00:02,700
ejected out into the water it's it's a

4110
03:00:08,870 --> 03:00:06,359
yellow foam ball about the size of a

4111
03:00:12,429 --> 03:00:08,880
softball weighs about a third of a pound

4112
03:00:15,650 --> 03:00:12,439
and and once it's ejected it will

4113
03:00:19,429 --> 03:00:15,660

transmit via the Iridium Network that we

4114

03:00:20,590 --> 03:00:19,439

use for the rtb the real-time Beacon it

4115

03:00:24,590 --> 03:00:20,600

also

4116

03:00:26,570 --> 03:00:24,600

transmits via a long-range radio what we

4117

03:00:30,050 --> 03:00:26,580

call Laura which is a line of sight

4118

03:00:33,110 --> 03:00:30,060

transmission and it it uh

4119

03:00:35,170 --> 03:00:33,120

it transmits its GPS position so that we

4120

03:00:37,969 --> 03:00:35,180

can we can locate it and go pick it up

4121

03:00:41,450 --> 03:00:37,979

and it's designed to survive the

4122

03:00:45,110 --> 03:00:41,460

Splashdown and continue transmitting

4123

03:00:46,990 --> 03:00:45,120

that GPS data for up to or even more

4124

03:00:52,190 --> 03:00:47,000

than 30 days

4125

03:00:58,250 --> 03:00:55,370

now we've got a ship in the area several

4126
03:01:00,830 --> 03:00:58,260
hundred miles off the coast of uh Hawaii

4127
03:01:05,389 --> 03:01:00,840
in the Pacific Ocean

4128
03:01:11,389 --> 03:01:05,399
where lofted is expected to splash down

4129
03:01:15,769 --> 03:01:13,490
and we understand that a Chase plane

4130
03:01:17,690 --> 03:01:15,779
that the team has up in the area

4131
03:01:23,450 --> 03:01:17,700
was able to get successful data

4132
03:01:27,950 --> 03:01:25,849
we're currently searching the skies with

4133
03:01:29,870 --> 03:01:27,960
an infrared camera mounted on

4134
03:01:32,570 --> 03:01:29,880
the Kahana II

4135
03:01:34,610 --> 03:01:32,580
oh and I get note that the EDR packets

4136
03:01:36,950 --> 03:01:34,620
have been received so we know that we uh

4137
03:01:38,990 --> 03:01:36,960
we're getting GPS data from the from the

4138
03:01:40,370 --> 03:01:39,000

ejectable data recorder as well great

4139

03:01:42,710 --> 03:01:40,380

news

4140

03:01:44,809 --> 03:01:42,720

means you should be able to find exactly

4141

03:01:48,650 --> 03:01:44,819

where that EDR is floating out there in

4142

03:01:50,570 --> 03:01:48,660

the Pacific Ocean and go pick it up yes

4143

03:01:52,490 --> 03:01:50,580

and that will be the job of the Kahana 2

4144

03:01:54,590 --> 03:01:52,500

as well it will first though get the

4145

03:01:57,410 --> 03:01:54,600

return vehicle on board

4146

03:02:00,530 --> 03:01:57,420

and then we'll work on getting the

4147

03:02:03,110 --> 03:02:00,540

electronic data recorded

4148

03:02:05,030 --> 03:02:03,120

yeah we've prioritized recovery of the

4149

03:02:07,570 --> 03:02:05,040

spacecraft first just because there's a

4150

03:02:10,490 --> 03:02:07,580

concern that it will uh eventually sink

4151
03:02:13,849 --> 03:02:10,500
and the the ejectable data recorder is

4152
03:02:20,990 --> 03:02:15,530
we're now trying to pay attention to

4153
03:02:26,870 --> 03:02:24,230
checking our data tracking software

4154
03:02:29,510 --> 03:02:26,880
and it looks like that's been uh that is

4155
03:02:33,889 --> 03:02:29,520
expected that is now we're awaiting a

4156
03:02:41,450 --> 03:02:36,710
so lofted would have deployed its

4157
03:02:46,250 --> 03:02:43,190
but again

4158
03:02:48,830 --> 03:02:46,260
waiting for the data as lofted Engineers

4159
03:02:52,130 --> 03:02:48,840
look on anxiously

4160
03:03:00,070 --> 03:02:52,140
focus on their monitors

4161
03:03:05,510 --> 03:03:03,830
so what do you see Sean I'm just

4162
03:03:09,230 --> 03:03:05,520
checking the

4163
03:03:15,530 --> 03:03:12,610

it looks like we're approaching uh

4164

03:03:19,450 --> 03:03:15,540

data recorder the data recorder should

4165

03:03:25,370 --> 03:03:22,670

and our re-entry vehicle is approaching

4166

03:03:27,769 --> 03:03:25,380

10 000 feet

4167

03:03:31,090 --> 03:03:29,330

second stage of the return of this

4168

03:03:34,070 --> 03:03:31,100

vehicle not necessarily part of the

4169

03:03:35,929 --> 03:03:34,080

technology demonstration but in order to

4170

03:03:39,710 --> 03:03:35,939

get it you needed to throw some shoots

4171

03:03:41,690 --> 03:03:39,720

out slow it down and be able to recover

4172

03:03:45,170 --> 03:03:41,700

it slow it down get it into the water

4173

03:03:47,330 --> 03:03:45,180

and as you were describing be able to

4174

03:03:49,550 --> 03:03:47,340

grab it with the Kahana 2 which has a

4175

03:03:52,670 --> 03:03:49,560

crane on the back of the boat

4176

03:03:54,590 --> 03:03:52,680

that is able to articulate over and

4177

03:03:58,790 --> 03:03:54,600

capture that vehicle there you can see

4178

03:04:00,349 --> 03:03:58,800

we've now had a uh an expected uh We've

4179

03:04:03,170 --> 03:04:00,359

mentioned that the expected parachute

4180

03:04:05,690 --> 03:04:03,180

deployment hoping for a green on that

4181

03:04:06,950 --> 03:04:05,700

dot to the far lower right hand corner

4182

03:04:09,410 --> 03:04:06,960

of your screen

4183

03:04:12,290 --> 03:04:09,420

if we get green there then we've got

4184

03:04:15,349 --> 03:04:12,300

confirmation that that parachute is out

4185

03:04:18,349 --> 03:04:15,359

so as the as the re-entry vehicle hits

4186

03:04:20,510 --> 03:04:18,359

the water there is a salt water

4187

03:04:22,070 --> 03:04:20,520

activated device on the parachute that

4188

03:04:23,450 --> 03:04:22,080

will cut the parachute loose from the

4189

03:04:27,050 --> 03:04:23,460

re-entry vehicle so that it doesn't

4190

03:04:29,630 --> 03:04:27,060

become entangled we also have on the

4191

03:04:32,690 --> 03:04:29,640

re-entry vehicle we have some recovery

4192

03:04:35,870 --> 03:04:32,700

AIDS those include flashing strobe

4193

03:04:37,969 --> 03:04:35,880

lights and mirrors that will reflect

4194

03:04:39,889 --> 03:04:37,979

light so that it's easy to see the

4195

03:04:42,769 --> 03:04:39,899

vehicle from from the boat either as

4196

03:04:44,570 --> 03:04:42,779

it's falling or or when it's in the

4197

03:04:47,450 --> 03:04:44,580

water

4198

03:04:49,429 --> 03:04:47,460

in the instance that the the spacecraft

4199

03:04:54,889 --> 03:04:49,439

hits the water

4200

03:04:57,590 --> 03:04:54,899

up upside down either due to the Sea

4201
03:04:59,690 --> 03:04:57,600
State or the winds just blow it up

4202
03:05:02,570 --> 03:04:59,700
um upside down we have a sonar Pinger

4203
03:05:05,090 --> 03:05:02,580
aboard the spacecraft too and we have a

4204
03:05:07,429 --> 03:05:05,100
sonar receiver aboard the Kahana too so

4205
03:05:09,769 --> 03:05:07,439
we can track it that way as well

4206
03:05:12,650 --> 03:05:09,779
got all the instruments covered in order

4207
03:05:19,490 --> 03:05:12,660
to track down both the return vehicle

4208
03:05:22,610 --> 03:05:20,150
um

4209
03:05:24,010 --> 03:05:22,620
I will note that our recovery ship does

4210
03:05:26,690 --> 03:05:24,020
have

4211
03:05:30,469 --> 03:05:26,700
balloons weather balloons in the air

4212
03:05:33,110 --> 03:05:30,479
with relays for the Laura line line of

4213
03:05:38,929 --> 03:05:33,120

sight long-range radio system

4214

03:05:44,330 --> 03:05:41,630

oh good oh good I heard that uh another

4215

03:05:46,309 --> 03:05:44,340

uh packet of data came in yes so that's

4216

03:05:48,950 --> 03:05:46,319

the Locator Beacon packet that's telling

4217

03:05:51,530 --> 03:05:48,960

us the GPS coordinates on the on the on

4218

03:05:52,790 --> 03:05:51,540

the um on the re-entry vehicle so we

4219

03:05:54,950 --> 03:05:52,800

know the location of the re-entry

4220

03:05:57,230 --> 03:05:54,960

vehicle and so just to summarize we've

4221

03:06:00,410 --> 03:05:57,240

got the location of the re-entry vehicle

4222

03:06:02,750 --> 03:06:00,420

and that of the electronic data recorder

4223

03:06:06,050 --> 03:06:02,760

both are down in the Pacific Ocean

4224

03:06:09,230 --> 03:06:06,060

several hundred miles away

4225

03:06:10,790 --> 03:06:09,240

from the coast of Hawaii

4226
03:06:15,950 --> 03:06:10,800
and you're looking on your screen there

4227
03:06:22,010 --> 03:06:19,670
yes inside that box would be the dots

4228
03:06:24,349 --> 03:06:22,020
and to your left

4229
03:06:26,210 --> 03:06:24,359
looking like that might be Hawaii yes

4230
03:06:27,410 --> 03:06:26,220
yes we're off the just off the coast of

4231
03:06:29,510 --> 03:06:27,420
Hawaii

4232
03:06:32,090 --> 03:06:29,520
so what are we looking at now Sean looks

4233
03:06:34,010 --> 03:06:32,100
like we got a couple data points there

4234
03:06:37,610 --> 03:06:34,020
um so there's going to be a data point

4235
03:06:41,150 --> 03:06:37,620
for the Locator Beacon which identifies

4236
03:06:44,030 --> 03:06:41,160
the position of the of the spacecraft in

4237
03:06:46,730 --> 03:06:44,040
the water and in another dot that will

4238
03:06:49,849 --> 03:06:46,740

represent the location of the kahanatu

4239

03:06:52,610 --> 03:06:49,859

ship and then the lines that you see

4240

03:06:54,830 --> 03:06:52,620

there represent the uh Landing the

4241

03:06:56,809 --> 03:06:54,840

ellipse the predicted Landing location

4242

03:06:59,030 --> 03:06:56,819

of the spacecraft and it looks like it's

4243

03:07:01,670 --> 03:06:59,040

very close to the to the center of that

4244

03:07:03,710 --> 03:07:01,680

project predicted Landing ellipse so

4245

03:07:05,650 --> 03:07:03,720

that's that's great I mean this is this

4246

03:07:08,330 --> 03:07:05,660

I think

4247

03:07:10,070 --> 03:07:08,340

we've we've had a completely successful

4248

03:07:17,150 --> 03:07:10,080

uh

4249

03:07:19,910 --> 03:07:17,160

ejectable data recorder

4250

03:07:21,769 --> 03:07:19,920

engineers at Langley Research Center and

4251
03:07:23,750 --> 03:07:21,779
Hampton Virginia

4252
03:07:25,309 --> 03:07:23,760
looking over their shoulder as they

4253
03:07:28,010 --> 03:07:25,319
study the data coming in on their

4254
03:07:28,020 --> 03:07:30,889
we're currently

4255
03:07:34,790 --> 03:07:33,410
monitoring a live camera on the Kahana

4256
03:07:51,830 --> 03:07:34,800
2.

4257
03:07:55,790 --> 03:07:53,330
so far

4258
03:07:58,429 --> 03:07:55,800
at this point I just got a note from

4259
03:08:01,269 --> 03:07:58,439
somebody aboard the uh the Kahana too

4260
03:08:05,990 --> 03:08:01,279
that they saw it Fly overhead

4261
03:08:09,889 --> 03:08:07,610
that must have been pretty exciting they

4262
03:08:11,090 --> 03:08:09,899
got a notification I just saw a little

4263
03:08:14,150 --> 03:08:11,100

while ago

4264

03:08:16,370 --> 03:08:14,160

saying that they there was

4265

03:08:24,050 --> 03:08:16,380

activity in their area over top of the

4266

03:08:24,060 --> 03:08:28,010

there's some high seas out there

4267

03:08:28,020 --> 03:08:56,650

foreign

4268

03:09:03,110 --> 03:08:59,570

and you're looking now live

4269

03:09:06,110 --> 03:09:03,120

at the camera on the Kahana 2 that is

4270

03:09:08,330 --> 03:09:06,120

scanning the skies for lofted but you

4271

03:09:10,910 --> 03:09:08,340

made a statement just a couple minutes

4272

03:09:12,290 --> 03:09:10,920

ago Sean we do expect

4273

03:09:14,389 --> 03:09:12,300

that both

4274

03:09:16,969 --> 03:09:14,399

the lofted

4275

03:09:19,490 --> 03:09:16,979

uh inflatable decelerator is in the

4276

03:09:22,910 --> 03:09:19,500

ocean along with that electronic data

4277

03:09:25,010 --> 03:09:22,920

recorder where we have received uh data

4278

03:09:27,590 --> 03:09:25,020

back from both the Locator Beacon aboard

4279

03:09:30,349 --> 03:09:27,600

the spacecraft and the ejectable data

4280

03:09:32,330 --> 03:09:30,359

module that was ejected and we've got

4281

03:09:35,750 --> 03:09:32,340

GPS coordinates on both of those that's

4282

03:09:41,269 --> 03:09:38,210

and so our camera is looking for both of

4283

03:09:43,309 --> 03:09:41,279

those in the water now

4284

03:09:47,389 --> 03:09:43,319

you can see the Seas out there in the

4285

03:09:55,490 --> 03:09:49,790

they're bouncing we got a report from

4286

03:09:58,370 --> 03:09:57,469

it was a bit of a rough ride to get out

4287

03:10:02,150 --> 03:09:58,380

there

4288

03:10:04,849 --> 03:10:02,160

searching searching the water for the

4289

03:10:08,750 --> 03:10:04,859

return vehicle as Sean mentioned they

4290

03:10:10,490 --> 03:10:08,760

have data they know where both

4291

03:10:12,590 --> 03:10:10,500

the decelerator

4292

03:10:14,210 --> 03:10:12,600

the inflatable decelerator is and they

4293

03:10:16,730 --> 03:10:14,220

know where that Electro electronic data

4294

03:10:18,349 --> 03:10:16,740

recorder is as well and so as they

4295

03:10:19,490 --> 03:10:18,359

continue to scan the ocean we want to

4296

03:10:21,590 --> 03:10:19,500

take a look

4297

03:10:24,769 --> 03:10:21,600

at a very pivotal moment in this entire

4298

03:10:26,929 --> 03:10:24,779

Mission Sean and that was a uh

4299

03:10:28,790 --> 03:10:26,939

an advancement in the technology that we

4300

03:10:32,750 --> 03:10:28,800

hadn't seen up until this point in time

4301
03:10:35,630 --> 03:10:32,760
and that is the release of lofted

4302
03:10:37,610 --> 03:10:35,640
from space and there it is this is a

4303
03:10:40,370 --> 03:10:37,620
replay

4304
03:10:43,010 --> 03:10:40,380
of the lofted return vehicle the

4305
03:10:45,710 --> 03:10:43,020
inflatable decelerator separating from

4306
03:10:48,650 --> 03:10:45,720
the Centaur upper stage falling back

4307
03:10:49,790 --> 03:10:48,660
down to planet Earth a little bit uh

4308
03:10:54,469 --> 03:10:49,800
looks like Somewhere over the Middle

4309
03:10:59,290 --> 03:10:56,150
yeah that's the that's the inflated

4310
03:11:03,170 --> 03:10:59,300
spacecraft again uh

4311
03:11:05,210 --> 03:11:03,180
the AeroShell looks exactly uh exactly

4312
03:11:08,570 --> 03:11:05,220
like we hoped it would I mean you you

4313
03:11:11,510 --> 03:11:08,580

commented uh to me off the air that it

4314

03:11:14,090 --> 03:11:11,520

looks like it would on the ground

4315

03:11:16,070 --> 03:11:14,100

exactly

4316

03:11:18,349 --> 03:11:16,080

and as we look at it it's important to

4317

03:11:20,690 --> 03:11:18,359

point out as we've just been saying that

4318

03:11:23,150 --> 03:11:20,700

we have both lofted

4319

03:11:25,610 --> 03:11:23,160

and the electronic data recorder which

4320

03:11:28,490 --> 03:11:25,620

was ejected from the inflatable

4321

03:11:30,849 --> 03:11:28,500

decelerator before it splashed down both

4322

03:11:34,190 --> 03:11:30,859

are now down in the water

4323

03:11:36,769 --> 03:11:34,200

transmitting GPS location

4324

03:11:40,130 --> 03:11:36,779

so that the recovery ship ula's Kahana

4325

03:11:42,830 --> 03:11:40,140

It can track both them down both of them

4326
03:11:46,070 --> 03:11:42,840
down and pluck them out of the water and

4327
03:11:47,389 --> 03:11:46,080
inside both the return vehicle and the

4328
03:11:51,710 --> 03:11:47,399
data recorder

4329
03:11:54,469 --> 03:11:51,720
is valuable data to the lofted team

4330
03:11:56,330 --> 03:11:54,479
and I'll just note that I did get a note

4331
03:11:57,610 --> 03:11:56,340
from the recovery ship they have

4332
03:12:00,410 --> 03:11:57,620
received

4333
03:12:02,389 --> 03:12:00,420
the GPS data from the ejectable data

4334
03:12:04,490 --> 03:12:02,399
recorder the Locator Beacon and the

4335
03:12:06,590 --> 03:12:04,500
real-time Beacon and they're currently

4336
03:12:09,110 --> 03:12:06,600
plotting a course to the Locator Beacon

4337
03:12:10,969 --> 03:12:09,120
which is aboard the spacecraft to avoid

4338
03:12:13,130 --> 03:12:10,979

the ejectable data recorders so that

4339

03:12:15,110 --> 03:12:13,140

they don't accidentally run over it and

4340

03:12:17,870 --> 03:12:15,120

there was a priority given right on

4341

03:12:20,450 --> 03:12:17,880

which one to pick up yes yes absolutely

4342

03:12:23,330 --> 03:12:20,460

again the priority is to get the

4343

03:12:25,790 --> 03:12:23,340

spacecraft first because there is a risk

4344

03:12:29,590 --> 03:12:25,800

that it could sink and we would like to

4345

03:12:33,170 --> 03:12:29,600

recover it if at all possible and then

4346

03:12:35,510 --> 03:12:33,180

once the the spacecraft is is recovered

4347

03:12:38,210 --> 03:12:35,520

then proceed to the ejectable data

4348

03:12:39,950 --> 03:12:38,220

recorder which is designed to float and

4349

03:12:42,590 --> 03:12:39,960

can continue transmitting its position

4350

03:12:44,809 --> 03:12:42,600

for 30 days

4351
03:12:47,269 --> 03:12:44,819
as we look at the data screen that the

4352
03:12:49,969 --> 03:12:47,279
engineers are looking at you can see the

4353
03:12:53,030 --> 03:12:49,979
plots on the left

4354
03:13:08,150 --> 03:12:53,040
and what those colors represent on the

4355
03:13:12,710 --> 03:13:10,670
real quickly

4356
03:13:15,469 --> 03:13:12,720
Sean they are they have adjusted it to a

4357
03:13:17,210 --> 03:13:15,479
100 mile range okay what are those

4358
03:13:20,630 --> 03:13:17,220
tracking uh lines that we're seeing on

4359
03:13:24,370 --> 03:13:20,640
the left yeah so the so the the straight

4360
03:13:27,050 --> 03:13:24,380
lines again are the landing ellipse

4361
03:13:29,510 --> 03:13:27,060
the outline of the land Landing ellipse

4362
03:13:32,389 --> 03:13:29,520
where we predicted the spacecraft would

4363
03:13:36,110 --> 03:13:32,399

land uh the dots represent the different

4364

03:13:38,690 --> 03:13:36,120

uh beacons so the pink dot is the

4365

03:13:40,730 --> 03:13:38,700

ejectable data recorder there's a gray

4366

03:13:44,450 --> 03:13:40,740

dot that represents our ship we

4367

03:13:45,710 --> 03:13:44,460

purposely kept it out of the way of the

4368

03:13:47,269 --> 03:13:45,720

landing spacecraft because we didn't

4369

03:13:49,790 --> 03:13:47,279

want the spacecraft to accidentally land

4370

03:13:51,469 --> 03:13:49,800

on the on the ship and then there's a

4371

03:13:53,750 --> 03:13:51,479

Green Dot that represents the locate

4372

03:13:55,490 --> 03:13:53,760

Locator Beacon which is the spacecraft

4373

03:13:57,410 --> 03:13:55,500

yeah and they're tightly populated

4374

03:13:59,330 --> 03:13:57,420

inside of that expected landing area

4375

03:14:01,969 --> 03:13:59,340

which is great news take a look at this

4376

03:14:07,969 --> 03:14:05,870

this is live video from the Kahana 2.

4377

03:14:09,830 --> 03:14:07,979

as our camera seeks to focus you can

4378

03:14:12,710 --> 03:14:09,840

make out what appears to be

4379

03:14:14,330 --> 03:14:12,720

a parachute

4380

03:14:16,730 --> 03:14:14,340

and a return vehicle

4381

03:14:19,190 --> 03:14:16,740

and we lost the focus on it we'll

4382

03:14:20,450 --> 03:14:19,200

stay with this shot and see and kind of

4383

03:14:22,790 --> 03:14:20,460

see it

4384

03:14:27,410 --> 03:14:22,800

if it clears up

4385

03:14:31,190 --> 03:14:29,750

and I guess from what we expected I'm a

4386

03:14:33,769 --> 03:14:31,200

little surprised to still see it up in

4387

03:14:35,510 --> 03:14:33,779

the air Sean well I I don't think this

4388

03:14:39,650 --> 03:14:35,520

is live video I think this is replay

4389

03:14:41,269 --> 03:14:39,660

yeah I think this is a recorded video

4390

03:14:43,630 --> 03:14:41,279

oh yeah it could be a delay in the

4391

03:14:46,610 --> 03:14:43,640

signal but they definitely see the the

4392

03:14:49,550 --> 03:14:46,620

airshell uh and it's bright because it's

4393

03:14:50,690 --> 03:14:49,560

warm and then the parachute uh up above

4394

03:14:53,809 --> 03:14:50,700

it

4395

03:14:55,490 --> 03:14:53,819

the red hot bottom of the accelerator

4396

03:14:58,070 --> 03:14:55,500

the decelerator rather the inflatable

4397

03:15:00,290 --> 03:14:58,080

decelerator

4398

03:15:02,809 --> 03:15:00,300

and above it the

4399

03:15:07,010 --> 03:15:02,819

parachute fully deployed

4400

03:15:09,650 --> 03:15:07,020

and I have um the the recovery vessel

4401
03:15:11,809 --> 03:15:09,660
has the vehicle under Chute on video

4402
03:15:14,570 --> 03:15:11,819
Dead Ahead so apparently this this could

4403
03:15:19,670 --> 03:15:14,580
be live so this is live video that still

4404
03:15:31,090 --> 03:15:21,230
well this is a big moment we're going to

4405
03:15:35,630 --> 03:15:33,170
if you're just joining us you're

4406
03:15:37,130 --> 03:15:35,640
watching live video from the middle of

4407
03:15:39,889 --> 03:15:37,140
the Pacific Ocean just a couple of

4408
03:15:41,330 --> 03:15:39,899
hundred miles away from Hawaii we have a

4409
03:15:43,910 --> 03:15:41,340
GPS camera

4410
03:15:45,349 --> 03:15:43,920
tracking the return of the lofted return

4411
03:15:48,349 --> 03:15:45,359
vehicle

4412
03:15:51,590 --> 03:15:48,359
from outer space this is a technology

4413
03:15:52,429 --> 03:15:51,600

demonstration to show that we can bring

4414

03:15:54,769 --> 03:15:52,439

back

4415

03:15:56,870 --> 03:15:54,779

a lot of stuff to Earth and we can also

4416

03:15:59,590 --> 03:15:56,880

go out and explore planets

4417

03:16:03,410 --> 03:15:59,600

with a technology called an inflatable

4418

03:16:05,090 --> 03:16:03,420

decelerator an AeroShell that is uh able

4419

03:16:07,190 --> 03:16:05,100

to decelerate

4420

03:16:09,349 --> 03:16:07,200

big things coming back into the

4421

03:16:10,849 --> 03:16:09,359

atmosphere

4422

03:16:11,870 --> 03:16:10,859

yeah

4423

03:16:15,530 --> 03:16:11,880

um

4424

03:16:19,070 --> 03:16:15,540

I think we've demonstrated uh that the

4425

03:16:22,849 --> 03:16:19,080

hiad will work at a from an orbital

4426

03:16:25,090 --> 03:16:22,859

velocity very high energies and that

4427

03:16:28,990 --> 03:16:25,100

gives us the capability of return

4428

03:16:32,990 --> 03:16:29,000

very large masses or um

4429

03:16:42,670 --> 03:16:33,000

uh land land on planets with very thin

4430

03:16:48,650 --> 03:16:45,889

this infrared camera

4431

03:16:50,510 --> 03:16:48,660

glowing at the bottom where lofted took

4432

03:16:53,090 --> 03:16:50,520

on so much heat as it came back in

4433

03:16:55,070 --> 03:16:53,100

through the atmosphere and since it's

4434

03:16:56,990 --> 03:16:55,080

elliptical in nature Sean here's why

4435

03:17:01,190 --> 03:16:57,000

we're about to splash down there it goes

4436

03:17:06,290 --> 03:17:03,469

and you can see the parachute now

4437

03:17:10,550 --> 03:17:06,300

collapsing no longer suspending lofted

4438

03:17:10,560 --> 03:17:15,230

clearly this is also Beyond the Horizon

4439

03:17:19,849 --> 03:17:17,809

at least it appears to be because lofted

4440

03:17:21,349 --> 03:17:19,859

has now disappeared

4441

03:17:28,370 --> 03:17:21,359

it looks like the parachute will do so

4442

03:17:34,550 --> 03:17:31,429

and you know if we have this shot Sean

4443

03:17:36,170 --> 03:17:34,560

the Kahana II is not too far away from

4444

03:17:38,510 --> 03:17:36,180

getting the return vehicle it is not

4445

03:17:41,450 --> 03:17:38,520

they they commented that they are

4446

03:17:45,410 --> 03:17:41,460

they're watching it descend so

4447

03:17:47,090 --> 03:17:45,420

um you know that gives us a great uh

4448

03:17:50,450 --> 03:17:47,100

optimism that we'll be able to get to

4449

03:17:52,670 --> 03:17:50,460

the the vehicle uh before before it

4450

03:17:54,590 --> 03:17:52,680

sinks and there you can see that uh

4451
03:17:55,610 --> 03:17:54,600
optimism reflected in the room there at

4452
03:17:58,070 --> 03:17:55,620
the Langley Research Center

4453
03:17:59,330 --> 03:17:58,080
congratulations to the Lofton Engineers

4454
03:18:01,670 --> 03:17:59,340
who are

4455
03:18:04,190 --> 03:18:01,680
giving the congratulatory handshakes and

4456
03:18:08,630 --> 03:18:04,200
high fives all around the room

4457
03:18:13,670 --> 03:18:08,640
many years of work research testing

4458
03:18:19,550 --> 03:18:17,210
it's a small team the lofta team is

4459
03:18:23,210 --> 03:18:19,560
a lot of hard-working engineers

4460
03:18:26,150 --> 03:18:23,220
it is a very small team and it was a a

4461
03:18:30,050 --> 03:18:26,160
very uh trying time because we built a

4462
03:18:33,050 --> 03:18:30,060
spacecraft during the pandemic and so it

4463
03:18:35,389 --> 03:18:33,060

made it really difficult to uh you know

4464

03:18:36,830 --> 03:18:35,399

we obviously we we dealt with the same

4465

03:18:38,570 --> 03:18:36,840

obstacles that everybody had to deal

4466

03:18:41,809 --> 03:18:38,580

with during the pandemic not being able

4467

03:18:44,389 --> 03:18:41,819

to go to work and resource issues

4468

03:18:46,429 --> 03:18:44,399

getting supplies and and and such and

4469

03:18:48,050 --> 03:18:46,439

still maintaining the schedule so that

4470

03:18:51,410 --> 03:18:48,060

we could have a spacecraft ready to fly

4471

03:18:54,250 --> 03:18:51,420

when when jpss2 was ready to fly and and

4472

03:18:57,830 --> 03:18:54,260

this this is absolutely the

4473

03:19:00,110 --> 03:18:57,840

we couldn't hope for for

4474

03:19:01,969 --> 03:19:00,120

a better outcome

4475

03:19:04,250 --> 03:19:01,979

and there are the champagne bottles

4476

03:19:05,870 --> 03:19:04,260

getting opened up well we don't know if

4477

03:19:07,490 --> 03:19:05,880

they're champagne but there's some kind

4478

03:19:15,349 --> 03:19:07,500

of bubbly at Langley they're probably

4479

03:19:21,290 --> 03:19:18,469

now Sean we've got a member of the crew

4480

03:19:23,690 --> 03:19:21,300

that is on the Kahana too

4481

03:19:25,070 --> 03:19:23,700

we've got a live connection established

4482

03:19:27,650 --> 03:19:25,080

with him in addition to that video that

4483

03:19:30,110 --> 03:19:27,660

we just saw lofty come down into the

4484

03:19:32,630 --> 03:19:30,120

Pacific Ocean under a parachute

4485

03:19:34,969 --> 03:19:32,640

and so now let's go out to Megan who is

4486

03:19:37,070 --> 03:19:34,979

uh in communication with that member uh

4487

03:19:39,590 --> 03:19:37,080

on board the Kana too Megan

4488

03:19:41,690 --> 03:19:39,600

wow this is just amazing I'm so glad we

4489

03:19:44,150 --> 03:19:41,700

got that live footage that was amazing

4490

03:19:46,730 --> 03:19:44,160

to see as we said the heat shield coming

4491

03:19:49,070 --> 03:19:46,740

down parachutes bringing it down softly

4492

03:19:51,530 --> 03:19:49,080

into the Pacific Ocean and waiting

4493

03:19:53,510 --> 03:19:51,540

nearby is the Kahana too that's the

4494

03:19:55,790 --> 03:19:53,520

recovery vessel that's going to get not

4495

03:19:57,830 --> 03:19:55,800

only the heat shield but also the data

4496

03:20:00,410 --> 03:19:57,840

recorder that was ejected so let's go

4497

03:20:02,929 --> 03:20:00,420

there where we have Greg Swanson he's

4498

03:20:05,929 --> 03:20:02,939

the lofted instrumentation lead and he's

4499

03:20:07,610 --> 03:20:05,939

on the boat right now Greg set the stage

4500

03:20:09,170 --> 03:20:07,620

for us where are you what's happening

4501

03:20:12,590 --> 03:20:09,180

did you see with your own eyes

4502

03:20:17,030 --> 03:20:15,710

oh man yeah no it was super exciting uh

4503

03:20:19,190 --> 03:20:17,040

everybody's

4504

03:20:20,750 --> 03:20:19,200

lots of high fives even some low fives I

4505

03:20:23,929 --> 03:20:20,760

think we saw Steve he's dance a jig

4506

03:20:25,490 --> 03:20:23,939

everybody is really excited right now um

4507

03:20:26,809 --> 03:20:25,500

I didn't get to watch the splashdam

4508

03:20:29,090 --> 03:20:26,819

because I was waiting on the phone but

4509

03:20:30,950 --> 03:20:29,100

uh yeah a lot of excitement once we saw

4510

03:20:32,570 --> 03:20:30,960

that video of it deployed and uh

4511

03:20:34,849 --> 03:20:32,580

released successfully and then of course

4512

03:20:36,530 --> 03:20:34,859

getting the data packets after the entry

4513

03:20:38,090 --> 03:20:36,540

pulse because we knew that meant it

4514

03:20:40,190 --> 03:20:38,100

survived and of course and then the

4515

03:20:42,110 --> 03:20:40,200

video of it actually coming in and

4516

03:20:44,570 --> 03:20:42,120

splashing down and so yeah we're about

4517

03:20:46,730 --> 03:20:44,580

500 Miles off the coast of Hawaii and uh

4518

03:20:48,110 --> 03:20:46,740

we're headed towards towards the RV it

4519

03:20:50,570 --> 03:20:48,120

should take about 45 minutes to get

4520

03:20:52,370 --> 03:20:50,580

there right now oh my gosh so here's

4521

03:20:54,290 --> 03:20:52,380

video of the boat we can tell this is

4522

03:20:56,269 --> 03:20:54,300

camera a camera that's that's showing

4523

03:20:58,910 --> 03:20:56,279

the back part of the boat you are on the

4524

03:21:00,530 --> 03:20:58,920

boat I'm going to apologize so sorry

4525

03:21:02,210 --> 03:21:00,540

that you didn't get to see the splashed

4526
03:21:04,370 --> 03:21:02,220
out because you were on the phone with

4527
03:21:06,050 --> 03:21:04,380
us uh but we really do appreciate you

4528
03:21:08,510 --> 03:21:06,060
taking the time to talk to us and kind

4529
03:21:10,010 --> 03:21:08,520
of uh telling us what's next so so I

4530
03:21:12,349 --> 03:21:10,020
know that there's the heat shield and

4531
03:21:14,269 --> 03:21:12,359
there's also the data recorder what what

4532
03:21:16,490 --> 03:21:14,279
happens next in terms of the recovery

4533
03:21:18,710 --> 03:21:16,500
mission

4534
03:21:20,690 --> 03:21:18,720
yeah so uh Sean touched on this briefly

4535
03:21:23,090 --> 03:21:20,700
already but uh you know we're gonna go

4536
03:21:24,469 --> 03:21:23,100
after the RV first the re-entry vehicle

4537
03:21:26,510 --> 03:21:24,479
because that's not really designed to

4538
03:21:28,070 --> 03:21:26,520

vote um so we have a minimal time to go

4539

03:21:30,050 --> 03:21:28,080

get that and recover it

4540

03:21:32,510 --> 03:21:30,060

and once we have that recovered we'll uh

4541

03:21:34,550 --> 03:21:32,520

go after the ejectable data recorder um

4542

03:21:36,050 --> 03:21:34,560

so that is designed to flow and uh ping

4543

03:21:37,849 --> 03:21:36,060

for up to 30 days so we have some time

4544

03:21:39,530 --> 03:21:37,859

to grab that one but our main focus

4545

03:21:41,389 --> 03:21:39,540

right now is trying to get to the RV and

4546

03:21:44,090 --> 03:21:41,399

get it on the boat I know you have the

4547

03:21:46,010 --> 03:21:44,100

GPS coordinates for both where where are

4548

03:21:47,750 --> 03:21:46,020

you in relation to those coordinates and

4549

03:21:51,950 --> 03:21:47,760

and how quickly do you think you'd be

4550

03:21:57,290 --> 03:21:54,590

yeah um I think we're about I think I

4551
03:21:58,730 --> 03:21:57,300
heard about five miles

4552
03:22:00,050 --> 03:21:58,740
um five miles away so it's gonna be

4553
03:22:01,910 --> 03:22:00,060
about four to five minutes to get to

4554
03:22:03,110 --> 03:22:01,920
there um it looks like I think we were

4555
03:22:04,849 --> 03:22:03,120
actually able to see in the video that

4556
03:22:06,230 --> 03:22:04,859
it's landed nose down which is great we

4557
03:22:07,849 --> 03:22:06,240
don't have to worry about it being

4558
03:22:09,410 --> 03:22:07,859
turtled and having to deal with that to

4559
03:22:11,330 --> 03:22:09,420
get out of the water so

4560
03:22:12,590 --> 03:22:11,340
unless these are actually uh cooperating

4561
03:22:14,809 --> 03:22:12,600
pretty well we should be able to put in

4562
03:22:17,630 --> 03:22:14,819
the seven meter boat uh a couple of us

4563
03:22:19,790 --> 03:22:17,640

will go up on that and get the uh rvl

4564

03:22:22,010 --> 03:22:19,800

prepped and ready to be lifted onto the

4565

03:22:23,870 --> 03:22:22,020

boat and I know you can't see it but but

4566

03:22:25,550 --> 03:22:23,880

right now viewers are watching the live

4567

03:22:27,950 --> 03:22:25,560

video again that we were able to record

4568

03:22:30,769 --> 03:22:27,960

this is a replay of that live video that

4569

03:22:32,570 --> 03:22:30,779

we were able to put up and we can see uh

4570

03:22:35,389 --> 03:22:32,580

the heat shield being brought down again

4571

03:22:36,830 --> 03:22:35,399

softly uh by parachutes that were

4572

03:22:38,929 --> 03:22:36,840

deployed

4573

03:22:40,670 --> 03:22:38,939

um I know we talked about this a lot you

4574

03:22:43,190 --> 03:22:40,680

know obviously we wanted to see a

4575

03:22:46,429 --> 03:22:43,200

successful inflation separation and

4576

03:22:48,950 --> 03:22:46,439

return but really the success is that

4577

03:22:51,590 --> 03:22:48,960

initial data that you guys were able to

4578

03:22:54,170 --> 03:22:51,600

uh take away from this test talk to us

4579

03:22:57,349 --> 03:22:54,180

again about the significance of this

4580

03:23:03,530 --> 03:22:59,809

yeah I mean this is

4581

03:23:05,990 --> 03:23:03,540

spoken about a lot so very first orbital

4582

03:23:07,969 --> 03:23:06,000

of the technology or other tests have

4583

03:23:09,469 --> 03:23:07,979

been several so this is and it's also a

4584

03:23:11,330 --> 03:23:09,479

much bigger scale this is a six meter

4585

03:23:12,769 --> 03:23:11,340

air shell compared to the three meters

4586

03:23:15,170 --> 03:23:12,779

that we've tested some orbitally in the

4587

03:23:17,510 --> 03:23:15,180

past so kind of a couple big steps there

4588

03:23:21,170 --> 03:23:17,520

and uh in testing and so

4589

03:23:22,670 --> 03:23:21,180

um yeah this is a great uh great

4590

03:23:23,990 --> 03:23:22,680

opportunity to get flight data to see

4591

03:23:25,250 --> 03:23:24,000

how it actually performed we know it

4592

03:23:27,710 --> 03:23:25,260

performed well enough to make it down

4593

03:23:29,510 --> 03:23:27,720

which is great um but the actual data

4594

03:23:31,370 --> 03:23:29,520

that's on board will tell us how well it

4595

03:23:33,769 --> 03:23:31,380

performed during entry and we'll be able

4596

03:23:35,870 --> 03:23:33,779

to you know not only refine our analysis

4597

03:23:37,969 --> 03:23:35,880

tools but also probably improve some of

4598

03:23:39,590 --> 03:23:37,979

our fabrication techniques of these

4599

03:23:40,849 --> 03:23:39,600

inflatable heat shields and last

4600

03:23:42,769 --> 03:23:40,859

question Greg I mean how do you feel

4601
03:23:45,229 --> 03:23:42,779
again I I heard you say that people were

4602
03:23:47,030 --> 03:23:45,239
giving high fives and dancing jigs how

4603
03:23:49,969 --> 03:23:47,040
do you feel personally being on this

4604
03:23:52,370 --> 03:23:49,979
boat uh you know about to play such a

4605
03:23:55,030 --> 03:23:52,380
pivotal role uh in testing this new

4606
03:23:59,349 --> 03:23:57,349
oh man I mean first of all I feel

4607
03:24:01,790 --> 03:23:59,359
relieved

4608
03:24:03,170 --> 03:24:01,800
you know there's a lot of nerves I've

4609
03:24:04,309 --> 03:24:03,180
been working on this for over a decade

4610
03:24:05,990 --> 03:24:04,319
there's a lot of people on the board

4611
03:24:06,950 --> 03:24:06,000
right now that worked on it longer than

4612
03:24:09,110 --> 03:24:06,960
that

4613
03:24:10,250 --> 03:24:09,120

um yeah everybody's just relieved and

4614

03:24:12,410 --> 03:24:10,260

excited

4615

03:24:14,389 --> 03:24:12,420

um and I'm feel lucky to have this

4616

03:24:15,950 --> 03:24:14,399

opportunity to be out here to to go get

4617

03:24:17,929 --> 03:24:15,960

it Greg thank you so much

4618

03:24:20,269 --> 03:24:17,939

congratulations to you and your team and

4619

03:24:21,590 --> 03:24:20,279

good luck with the recovery mission that

4620

03:24:23,809 --> 03:24:21,600

I know you guys are going to do great

4621

03:24:26,090 --> 03:24:23,819

with let's head on over to Langley now

4622

03:24:27,710 --> 03:24:26,100

where the lofted team I'm sure must be

4623

03:24:30,050 --> 03:24:27,720

celebrating right now the moment years

4624

03:24:33,110 --> 03:24:30,060

in the making again as Greg talked about

4625

03:24:35,090 --> 03:24:33,120

uh hard work and dedication of a lot of

4626
03:24:36,590 --> 03:24:35,100
people so Angelique take it away tell us

4627
03:24:41,870 --> 03:24:36,600
everybody's reactions through that

4628
03:24:47,690 --> 03:24:44,870
I mean Megan you're absolutely right the

4629
03:24:50,450 --> 03:24:47,700
entire flight Mission support center was

4630
03:24:52,130 --> 03:24:50,460
just I I've never seen bigger Smiles I

4631
03:24:54,170 --> 03:24:52,140
think is probably the best way to kind

4632
03:24:56,690 --> 03:24:54,180
of sum up the emotion that was going on

4633
03:24:58,610 --> 03:24:56,700
both as data started to come in and once

4634
03:25:00,950 --> 03:24:58,620
we the re-entry vehicle made it to

4635
03:25:04,250 --> 03:25:00,960
Splashdown it was incredible there were

4636
03:25:07,190 --> 03:25:04,260
handshakes Smiles out to here and I you

4637
03:25:09,590 --> 03:25:07,200
can just see the pride that the the team

4638
03:25:11,510 --> 03:25:09,600

is feeling right now so while we have

4639

03:25:13,910 --> 03:25:11,520

them in here right next to me I actually

4640

03:25:16,070 --> 03:25:13,920

have the associate administrator of the

4641

03:25:18,229 --> 03:25:16,080

space technology Mission directorate Jim

4642

03:25:19,550 --> 03:25:18,239

reuter Jim it's so great to have you

4643

03:25:21,349 --> 03:25:19,560

here and to share this moment this is

4644

03:25:23,809 --> 03:25:21,359

incredible it's great to be here

4645

03:25:25,849 --> 03:25:23,819

Angelique oh it's so exciting I Can't

4646

03:25:27,469 --> 03:25:25,859

Describe enough how it's great to see

4647

03:25:29,690 --> 03:25:27,479

this and Jim I know that this is a

4648

03:25:31,190 --> 03:25:29,700

really big deal for your organization in

4649

03:25:33,710 --> 03:25:31,200

particular can you tell me how you're

4650

03:25:36,530 --> 03:25:33,720

feeling in that context yeah it sure

4651
03:25:37,969 --> 03:25:36,540
sure is um our responsibility is to do

4652
03:25:39,469 --> 03:25:37,979
the cross-cutting transformative

4653
03:25:42,290 --> 03:25:39,479
Technologies to take us to new

4654
03:25:44,150 --> 03:25:42,300
adventures and stuff and there's and one

4655
03:25:45,889 --> 03:25:44,160
of which is of course bringing humans to

4656
03:25:47,690 --> 03:25:45,899
Mars this is one of the most critical

4657
03:25:49,969 --> 03:25:47,700
technologies that we're establishing

4658
03:25:51,530 --> 03:25:49,979
right now and we've with this Mission by

4659
03:25:54,050 --> 03:25:51,540
all accounts we've established that

4660
03:25:56,690 --> 03:25:54,060
first successful orbital launch and

4661
03:25:58,610 --> 03:25:56,700
recovery and so it's just it's just a

4662
03:26:00,170 --> 03:25:58,620
critical part of what we're doing and

4663
03:26:01,969 --> 03:26:00,180

earlier we talked a bit about the

4664

03:26:04,550 --> 03:26:01,979

different potential uses for this

4665

03:26:06,050 --> 03:26:04,560

technology how soon would we be able to

4666

03:26:08,630 --> 03:26:06,060

start you know putting this into use

4667

03:26:10,969 --> 03:26:08,640

yeah it'll sort of depend naturally on

4668

03:26:12,710 --> 03:26:10,979

where the Investments and and stuff the

4669

03:26:15,349 --> 03:26:12,720

first practical use is probably on

4670

03:26:17,809 --> 03:26:15,359

returning large cargo and Rocket engines

4671

03:26:19,670 --> 03:26:17,819

from space that's one that probably in

4672

03:26:21,769 --> 03:26:19,680

the next few years or so that we'll be

4673

03:26:23,330 --> 03:26:21,779

seeing and then along the way we'll be

4674

03:26:25,969 --> 03:26:23,340

doing more demonstrations that get us to

4675

03:26:28,190 --> 03:26:25,979

Mars and of the many different

4676
03:26:29,570 --> 03:26:28,200
applications of this technology which

4677
03:26:32,690 --> 03:26:29,580
one would you say you're the most

4678
03:26:34,790 --> 03:26:32,700
excited about well you know I will start

4679
03:26:36,170 --> 03:26:34,800
by saying I really get excited about

4680
03:26:38,210 --> 03:26:36,180
things where we have a partnership

4681
03:26:40,190 --> 03:26:38,220
between and and have multiple uses for

4682
03:26:41,929 --> 03:26:40,200
the same technology and and really

4683
03:26:44,090 --> 03:26:41,939
especially when it's a commercial and

4684
03:26:47,389 --> 03:26:44,100
the NASA use but

4685
03:26:49,670 --> 03:26:47,399
I I can't I can't lie there's no better

4686
03:26:53,630 --> 03:26:49,680
coolness Factor than than Landing humans

4687
03:26:55,309 --> 03:26:53,640
on Mars or taking or enabling Landing in

4688
03:26:56,809 --> 03:26:55,319

the highlands and stuff of Mars and so

4689

03:26:59,450 --> 03:26:56,819

it just doesn't get better than that

4690

03:27:01,370 --> 03:26:59,460

absolutely from here to Mars

4691

03:27:02,990 --> 03:27:01,380

well it's been so great having you here

4692

03:27:05,210 --> 03:27:03,000

thank you so much for taking some time

4693

03:27:06,229 --> 03:27:05,220

to share in this moment with us all and

4694

03:27:08,389 --> 03:27:06,239

with that we're going to send it back

4695

03:27:09,410 --> 03:27:08,399

over to you Megan thanks Angelique and

4696

03:27:11,210 --> 03:27:09,420

I'm actually going to send it back out

4697

03:27:13,610 --> 03:27:11,220

to Daryl and Sean I hear that they have

4698

03:27:16,309 --> 03:27:13,620

more to report uh about this uh this

4699

03:27:19,250 --> 03:27:16,319

test it sounds like the recovery vehicle

4700

03:27:21,710 --> 03:27:19,260

or sorry the heat shield is only a few

4701
03:27:23,630 --> 03:27:21,720
miles away from the recovery vessel yes

4702
03:27:25,370 --> 03:27:23,640
that's right Megan it really worked out

4703
03:27:27,410 --> 03:27:25,380
Sean and I were just talking about that

4704
03:27:29,750 --> 03:27:27,420
earlier you know when it came down into

4705
03:27:32,750 --> 03:27:29,760
the water the data suggested that they

4706
03:27:35,990 --> 03:27:32,760
were only five miles away between the

4707
03:27:39,290 --> 03:27:36,000
Kahana II and the landing location of

4708
03:27:42,410 --> 03:27:39,300
the lofted return vehicle that was a lot

4709
03:27:44,750 --> 03:27:42,420
closer than we expected it to be yes uh

4710
03:27:47,630 --> 03:27:44,760
we didn't we we expected to be a little

4711
03:27:50,030 --> 03:27:47,640
bit of a ride for the boat to get to the

4712
03:27:52,610 --> 03:27:50,040
to the vehicle to recover it um and some

4713
03:27:55,070 --> 03:27:52,620

of that was just uh deliberate so that

4714

03:27:57,469 --> 03:27:55,080

we wouldn't risk uh the vehicle coming

4715

03:28:00,050 --> 03:27:57,479

down on the boat so this seems to work

4716

03:28:02,389 --> 03:28:00,060

out very well in our favor

4717

03:28:05,809 --> 03:28:02,399

um the the spacecraft landed so closely

4718

03:28:09,889 --> 03:28:05,819

to the boat and now the Ula Kahana II is

4719

03:28:12,050 --> 03:28:09,899

steaming towards the uh return vehicle

4720

03:28:14,389 --> 03:28:12,060

the inflatable decelerator which is down

4721

03:28:17,929 --> 03:28:14,399

in the water we tracked it with an

4722

03:28:21,110 --> 03:28:17,939

infrared camera aboard the Kahana II as

4723

03:28:24,590 --> 03:28:21,120

it came down just over the horizon

4724

03:28:28,969 --> 03:28:27,050

to a soft Landing

4725

03:28:31,490 --> 03:28:28,979

and that's critical for the lofta team

4726

03:28:34,130 --> 03:28:31,500

which wants to gather the data

4727

03:28:36,710 --> 03:28:34,140

that is inside that returned vehicle and

4728

03:28:39,050 --> 03:28:36,720

I heard Greg say who's aboard the ship

4729

03:28:41,389 --> 03:28:39,060

that it landed nose down and that's a

4730

03:28:44,210 --> 03:28:41,399

good thing yes definitely a good thing

4731

03:28:47,330 --> 03:28:44,220

uh you know we when we'd plan for the

4732

03:28:49,790 --> 03:28:47,340

recovery we looked at multiple scenarios

4733

03:28:52,790 --> 03:28:49,800

um nose down is is obviously optimal

4734

03:28:54,889 --> 03:28:52,800

because the parachute harnesses are uh

4735

03:28:56,510 --> 03:28:54,899

are on the the back side of the

4736

03:28:59,090 --> 03:28:56,520

spacecraft and that's how we plan on

4737

03:29:00,070 --> 03:28:59,100

lifting it aboard the aboard the Kahana

4738

03:29:04,070 --> 03:29:00,080

too

4739

03:29:08,090 --> 03:29:04,080

also we looked at scenarios where it uh

4740

03:29:10,610 --> 03:29:08,100

it lands upside down so so nose up

4741

03:29:13,070 --> 03:29:10,620

um and we that would require additional

4742

03:29:14,929 --> 03:29:13,080

lifts to get it flipped over so that we

4743

03:29:18,170 --> 03:29:14,939

could get it onto the boat and put it in

4744

03:29:21,290 --> 03:29:18,180

the stand nose down again other concerns

4745

03:29:24,530 --> 03:29:21,300

that we have uh are water getting into

4746

03:29:26,870 --> 03:29:24,540

the uh the the inflatable uh because

4747

03:29:27,670 --> 03:29:26,880

it's it's in the water it's basically a

4748

03:29:30,410 --> 03:29:27,680

bowl

4749

03:29:33,710 --> 03:29:30,420

we did some analysis that said as long

4750

03:29:37,490 --> 03:29:33,720

as uh the the AeroShell has 15 percent

4751
03:29:38,870 --> 03:29:37,500
of its uh volume filled with nitrogen it

4752
03:29:41,570 --> 03:29:38,880
will float

4753
03:29:43,429 --> 03:29:41,580
um so we're very confident based on that

4754
03:29:45,889 --> 03:29:43,439
Landing that we saw in the video that

4755
03:29:48,769 --> 03:29:45,899
that uh you know it should be in good

4756
03:29:51,410 --> 03:29:48,779
shape uh you saw the video of the of the

4757
03:29:53,510 --> 03:29:51,420
Kahana too we have some uh some buoys

4758
03:29:55,849 --> 03:29:53,520
aboard inflatable buoys to attached to

4759
03:29:57,590 --> 03:29:55,859
the spacecraft if it looks like it's in

4760
03:29:59,630 --> 03:29:57,600
danger of sinking so we can we can

4761
03:30:02,750 --> 03:29:59,640
attach those and that will give us time

4762
03:30:04,190 --> 03:30:02,760
to uh to recover the uh the the

4763
03:30:07,010 --> 03:30:04,200

spacecraft

4764

03:30:08,570 --> 03:30:07,020

and as you're looking uh live

4765

03:30:10,010 --> 03:30:08,580

I want to let you know that the folks

4766

03:30:12,110 --> 03:30:10,020

inside the room that those are the

4767

03:30:14,870 --> 03:30:12,120

lofted engineers

4768

03:30:18,830 --> 03:30:14,880

who have just celebrated

4769

03:30:20,870 --> 03:30:18,840

a successful technology demonstration

4770

03:30:23,269 --> 03:30:20,880

of their low earth orbital flight test

4771

03:30:24,889 --> 03:30:23,279

of an inflatable decelerator

4772

03:30:27,790 --> 03:30:24,899

or lofted

4773

03:30:29,809 --> 03:30:27,800

and they just got some words from

4774

03:30:31,490 --> 03:30:29,819

associate administrator for space

4775

03:30:33,650 --> 03:30:31,500

technology Mission directorate Jim

4776
03:30:37,550 --> 03:30:33,660
reuter and now

4777
03:30:39,110 --> 03:30:37,560
some cheers cups in hand

4778
03:30:40,429 --> 03:30:39,120
bottles of

4779
03:30:43,030 --> 03:30:40,439
well

4780
03:30:47,030 --> 03:30:43,040
sparkling something

4781
03:30:53,990 --> 03:30:47,040
and uh now they're celebrating their

4782
03:31:00,050 --> 03:30:57,290
for a mission that had

4783
03:31:02,030 --> 03:31:00,060
such a great deal of uncertainty brand

4784
03:31:04,849 --> 03:31:02,040
new technology being tested coming back

4785
03:31:07,250 --> 03:31:04,859
from space for the very first time

4786
03:31:09,229 --> 03:31:07,260
I can only imagine how rewarding it is

4787
03:31:11,510 --> 03:31:09,239
for you and for those

4788
03:31:14,330 --> 03:31:11,520

folks that we see in the room yeah so

4789

03:31:17,210 --> 03:31:14,340

this is and worse we're a space

4790

03:31:20,809 --> 03:31:17,220

um technology demonstration Mission so

4791

03:31:23,510 --> 03:31:20,819

it's very high risk very high reward so

4792

03:31:25,550 --> 03:31:23,520

you know there's a lot of concern that

4793

03:31:27,469 --> 03:31:25,560

something won't work and and maybe the

4794

03:31:28,670 --> 03:31:27,479

mission mission doesn't go as planned

4795

03:31:30,710 --> 03:31:28,680

but

4796

03:31:32,929 --> 03:31:30,720

um just from what we've seen here it

4797

03:31:36,769 --> 03:31:32,939

looks like everything went as as well as

4798

03:31:59,769 --> 03:31:36,779

we could have hoped and a very high

4799

03:32:05,030 --> 03:32:02,090

and right now

4800

03:32:07,429 --> 03:32:05,040

uh the lofty team getting some words

4801
03:32:10,910 --> 03:32:07,439
from a member of the team that you know

4802
03:32:12,650 --> 03:32:10,920
well yes uh Ron mersky is the uh he's

4803
03:32:14,809 --> 03:32:12,660
the head of the atmospheric flight and

4804
03:32:16,550 --> 03:32:14,819
entry systems Branch so that's the

4805
03:32:18,530 --> 03:32:16,560
branch specifically that deals with the

4806
03:32:20,870 --> 03:32:18,540
entry descent and Landing

4807
03:32:22,729 --> 03:32:20,880
um and it's the premiere I'd say it's

4808
03:32:25,130 --> 03:32:22,739
the premier group within all of NASA for

4809
03:32:27,710 --> 03:32:25,140
for planetary entry descent and Landing

4810
03:32:31,610 --> 03:32:27,720
well he looks awfully proud of his team

4811
03:32:36,530 --> 03:32:34,490
and with cups in hand they are ready to

4812
03:32:39,229 --> 03:32:36,540
celebrate and these

4813
03:32:42,650 --> 03:32:39,239

early morning hours out there in uh

4814

03:32:47,450 --> 03:32:42,660

Hampton Virginia where it is currently

4815

03:32:50,210 --> 03:32:47,460

7 17 a.m Eastern Time 4 17

4816

03:32:53,030 --> 03:32:50,220

a.m Pacific time here on the West Coast

4817

03:32:54,590 --> 03:32:53,040

where we launched lofted just about two

4818

03:32:57,410 --> 03:32:54,600

and a half hours ago

4819

03:33:00,710 --> 03:32:57,420

successful liftoff of the atlas V rocket

4820

03:33:02,690 --> 03:33:00,720

carrying jpss2 a weather observation

4821

03:33:05,929 --> 03:33:02,700

satellite

4822

03:33:08,150 --> 03:33:05,939

that uh separated about a half hour

4823

03:33:12,050 --> 03:33:08,160

after liftoff

4824

03:33:15,710 --> 03:33:12,060

and then an hour and a half after that

4825

03:33:18,469 --> 03:33:15,720

we had the successful completion

4826
03:33:22,610 --> 03:33:18,479
of the lofted mission

4827
03:33:28,610 --> 03:33:25,490
oh it looks like we have a video from

4828
03:33:30,530 --> 03:33:28,620
the ship of the RV on the water although

4829
03:33:32,210 --> 03:33:30,540
it I'm having technical difficulties

4830
03:33:34,309 --> 03:33:32,220
getting it

4831
03:33:37,190 --> 03:33:34,319
we've got a number of cameras on the

4832
03:33:40,309 --> 03:33:37,200
ship and uh one is a gimbal

4833
03:33:41,929 --> 03:33:40,319
and uh another is fixed on the boat

4834
03:33:45,769 --> 03:33:41,939
we're going to bring you live imagery

4835
03:33:48,110 --> 03:33:45,779
right now we plan on trying to bring you

4836
03:33:51,050 --> 03:33:48,120
the recovery

4837
03:33:53,269 --> 03:33:51,060
of the lofted vehicle as uh the lofta

4838
03:33:55,190 --> 03:33:53,279

team in Virginia goes Bottoms Up

4839

03:33:57,769 --> 03:33:55,200

in celebration of the completion of

4840

03:34:02,750 --> 03:34:00,290

let's listen into Angelique caring who

4841

03:34:05,170 --> 03:34:02,760

is uh interviewing one of the members of

4842

03:34:08,330 --> 03:34:05,180

the lofta team

4843

03:34:10,309 --> 03:34:08,340

coming down and that that's what we're

4844

03:34:14,030 --> 03:34:10,319

doing this for really that technology

4845

03:34:16,490 --> 03:34:14,040

and then seeing it work so well that

4846

03:34:18,349 --> 03:34:16,500

it's coming down in one piece you know

4847

03:34:20,630 --> 03:34:18,359

uh splashing down in the Pacific Ocean

4848

03:34:22,370 --> 03:34:20,640

just like how we had designed and it

4849

03:34:24,710 --> 03:34:22,380

turns out the recovery boat is very

4850

03:34:26,510 --> 03:34:24,720

close by too uh based on the predictions

4851

03:34:28,370 --> 03:34:26,520

we had done before so

4852

03:34:29,990 --> 03:34:28,380

um it is an amazing feeling I can't wait

4853

03:34:32,450 --> 03:34:30,000

to go back in and celebrate with my team

4854

03:34:34,550 --> 03:34:32,460

absolutely and I know I mean obviously

4855

03:34:36,170 --> 03:34:34,560

getting that actual camera footage was

4856

03:34:37,969 --> 03:34:36,180

really exciting but can you tell me a

4857

03:34:39,950 --> 03:34:37,979

bit about how it felt to get those first

4858

03:34:41,690 --> 03:34:39,960

bits of data actually coming in that's

4859

03:34:43,550 --> 03:34:41,700

right so um I'm not the thermal system

4860

03:34:46,330 --> 03:34:43,560

lead but I saw the thermal system lead

4861

03:34:49,250 --> 03:34:46,340

analyze the temperature data and it was

4862

03:34:51,050 --> 03:34:49,260

nominal data we saw where the latitude

4863

03:34:53,389 --> 03:34:51,060

longitude was happening so based on that

4864

03:34:55,429 --> 03:34:53,399

we kind of know how the actual

4865

03:34:56,870 --> 03:34:55,439

experiment went they were nominal they

4866

03:34:59,090 --> 03:34:56,880

were right where we were expecting it to

4867

03:35:01,729 --> 03:34:59,100

be so you know as an engineer you really

4868

03:35:03,590 --> 03:35:01,739

love the word nominal and it just has

4869

03:35:05,990 --> 03:35:03,600

been that kind of day so far I'm really

4870

03:35:08,210 --> 03:35:06,000

excited for the layperson some what does

4871

03:35:11,389 --> 03:35:08,220

nominal mean nominal means that when we

4872

03:35:13,610 --> 03:35:11,399

make prediction we want we expect it to

4873

03:35:16,010 --> 03:35:13,620

be somewhere and then we expect maybe it

4874

03:35:18,050 --> 03:35:16,020

can be off by a little bit but if you're

4875

03:35:19,670 --> 03:35:18,060

right in the middle that's nominal and

4876

03:35:22,790 --> 03:35:19,680

that's what it looks like we're doing so

4877

03:35:24,530 --> 03:35:22,800

far that is incredibly exciting as that

4878

03:35:28,130 --> 03:35:24,540

data comes in what will you and the team

4879

03:35:30,590 --> 03:35:28,140

be doing well um from my team um part of

4880

03:35:33,050 --> 03:35:30,600

the trajectory uh Team so we will be

4881

03:35:35,450 --> 03:35:33,060

looking at the data sets that we got

4882

03:35:38,690 --> 03:35:35,460

while we were coming down and also on

4883

03:35:40,190 --> 03:35:38,700

the recovery device and we'll be using

4884

03:35:41,929 --> 03:35:40,200

that information to figure out how well

4885

03:35:43,729 --> 03:35:41,939

we did in our pre-flight predictions

4886

03:35:45,650 --> 03:35:43,739

there will be other people in the team

4887

03:35:47,929 --> 03:35:45,660

that will be taking that data and seeing

4888

03:35:49,729 --> 03:35:47,939

how well their models did so that we can

4889

03:35:52,010 --> 03:35:49,739

predict hi-hat performance for other

4890

03:35:54,950 --> 03:35:52,020

flights and maybe to a Mars mission one

4891

03:35:56,929 --> 03:35:54,960

day how incredibly exciting well

4892

03:35:58,729 --> 03:35:56,939

congratulations I know that you're

4893

03:36:00,410 --> 03:35:58,739

probably very anxious to get back in

4894

03:36:02,630 --> 03:36:00,420

there absolutely team thank you so much

4895

03:36:04,010 --> 03:36:02,640

for stepping out to talk with us thanks

4896

03:36:08,750 --> 03:36:04,020

for having me appreciate congratulations

4897

03:36:08,760 --> 03:36:13,190

maybe wait

4898

03:36:19,070 --> 03:36:15,290

thank you Angelique

4899

03:36:22,309 --> 03:36:19,080

that was an interview with Dr Sam Duda

4900

03:36:26,090 --> 03:36:22,319

who planned out the trajectory for this

4901
03:36:31,250 --> 03:36:29,389
yeah um so just listening to Psalm um

4902
03:36:34,130 --> 03:36:31,260
you know he's he's in the room at

4903
03:36:36,349 --> 03:36:34,140
Langley and watching watching all the

4904
03:36:38,269 --> 03:36:36,359
data come back and and he's the term

4905
03:36:41,210 --> 03:36:38,279
nominal and that's great because that

4906
03:36:43,130 --> 03:36:41,220
means uh that the vehicle performed the

4907
03:36:45,469 --> 03:36:43,140
way that we expected it to and the way

4908
03:36:47,389 --> 03:36:45,479
that the models um predicted it would so

4909
03:36:49,370 --> 03:36:47,399
uh that's great and I think right now

4910
03:36:51,950 --> 03:36:49,380
we're looking at video of the spacecraft

4911
03:36:54,530 --> 03:36:51,960
floating in the water

4912
03:36:56,929 --> 03:36:54,540
um and that is something I did not

4913
03:36:59,090 --> 03:36:56,939

expect to see uh especially this close

4914

03:37:01,070 --> 03:36:59,100

to the recovery ship and that's that's

4915

03:37:04,190 --> 03:37:01,080

uh

4916

03:37:06,170 --> 03:37:04,200

very exciting amazing live imagery

4917

03:37:08,330 --> 03:37:06,180

coming in right now

4918

03:37:11,389 --> 03:37:08,340

from the Pacific Ocean just a couple of

4919

03:37:14,269 --> 03:37:11,399

hundred miles off the coast of Hawaii

4920

03:37:17,389 --> 03:37:14,279

you're looking at the lofted re-entry

4921

03:37:20,510 --> 03:37:17,399

vehicle in the water and it appears Sean

4922

03:37:24,290 --> 03:37:20,520

to still be fully inflated it absolutely

4923

03:37:25,670 --> 03:37:24,300

does appear to be holding its its uh its

4924

03:37:28,610 --> 03:37:25,680

shape I mean it hasn't been in the water

4925

03:37:32,330 --> 03:37:28,620

that long and I I did mention

4926

03:37:35,389 --> 03:37:32,340

um you know we it's designed so that we

4927

03:37:38,570 --> 03:37:35,399

vent all the excess gas in the in the

4928

03:37:41,389 --> 03:37:38,580

tanks but we keep the volume of air

4929

03:37:44,210 --> 03:37:41,399

inside the uh the inflatable to provide

4930

03:37:48,050 --> 03:37:44,220

buoyancy and it looks like the landing

4931

03:37:50,030 --> 03:37:48,060

was soft enough that it didn't it didn't

4932

03:37:51,950 --> 03:37:50,040

cause any tears or anything and that

4933

03:37:55,429 --> 03:37:51,960

it's still maintaining its shape very

4934

03:37:57,950 --> 03:37:55,439

well I do see it bobbing up and down so

4935

03:38:01,190 --> 03:37:57,960

hopefully we don't get a lot of water

4936

03:38:04,370 --> 03:38:01,200

inside of it but the recovery vessel is

4937

03:38:08,210 --> 03:38:04,380

very near to it so this is very positive

4938

03:38:13,190 --> 03:38:10,130

and as you mentioned it's this bowl

4939

03:38:15,349 --> 03:38:13,200

shaped so it could take on some water

4940

03:38:17,929 --> 03:38:15,359

um but if it's fully inflated would you

4941

03:38:22,250 --> 03:38:17,939

expect that it might still float yes so

4942

03:38:24,650 --> 03:38:22,260

uh we did we did analysis early on uh in

4943

03:38:27,769 --> 03:38:24,660

in planning the mission and that

4944

03:38:30,469 --> 03:38:27,779

analysis showed that uh 15 of the

4945

03:38:33,170 --> 03:38:30,479

AeroShell volume uh if it was filled

4946

03:38:34,790 --> 03:38:33,180

with nitrogen still then the vehicle

4947

03:38:35,630 --> 03:38:34,800

would float

4948

03:38:38,330 --> 03:38:35,640

um

4949

03:38:40,690 --> 03:38:38,340

we have factored in the potential that

4950

03:38:43,610 --> 03:38:40,700

the spacecraft gets water in it

4951
03:38:47,269 --> 03:38:43,620
especially in that bowl area for the

4952
03:38:49,790 --> 03:38:47,279
lifts and so we have some some scenarios

4953
03:38:52,190 --> 03:38:49,800
where we would uh if it's got water in

4954
03:38:54,410 --> 03:38:52,200
it we would lift it up and dump that

4955
03:38:57,410 --> 03:38:54,420
water out before we lifted it onto the

4956
03:39:00,110 --> 03:38:57,420
boat just to reduce the weight of the of

4957
03:39:03,229 --> 03:39:00,120
the load on the crane

4958
03:39:05,330 --> 03:39:03,239
uh and uh I don't I don't recall if we

4959
03:39:07,010 --> 03:39:05,340
discussed this or not but uh you know

4960
03:39:10,370 --> 03:39:07,020
when the when the spacecraft hits the

4961
03:39:12,229 --> 03:39:10,380
water uh the parachute Cuts away and you

4962
03:39:14,450 --> 03:39:12,239
you can obviously see this the parachute

4963
03:39:16,429 --> 03:39:14,460

uh has cut away so the spacecraft can't

4964

03:39:18,229 --> 03:39:16,439

get entangled in it there are four

4965

03:39:19,670 --> 03:39:18,239

risers coming off the back of the

4966

03:39:21,950 --> 03:39:19,680

spacecraft that go to the parachute

4967

03:39:25,070 --> 03:39:21,960

there are 20-foot risers uh each one of

4968

03:39:28,969 --> 03:39:25,080

those risers has a four inch uh loop in

4969

03:39:32,030 --> 03:39:28,979

it and lifting it I ideally could be as

4970

03:39:33,830 --> 03:39:32,040

simple as putting those four Loops over

4971

03:39:35,990 --> 03:39:33,840

the hook of the crane and just lifting

4972

03:39:38,990 --> 03:39:36,000

it straight up and onto the deck

4973

03:39:41,330 --> 03:39:39,000

well that would be a continuation of

4974

03:39:43,670 --> 03:39:41,340

just the nominal mission that we've seen

4975

03:39:46,910 --> 03:39:43,680

so far from the very start of this which

4976

03:39:49,969 --> 03:39:46,920

uh has uh done nothing but uh cause uh

4977

03:39:53,389 --> 03:39:49,979

Elation and uh Pride for the law of the

4978

03:39:56,150 --> 03:39:53,399

team as we look live at the lofted uh

4979

03:39:57,530 --> 03:39:56,160

return vehicle in the water in the

4980

03:40:00,469 --> 03:39:57,540

Pacific Ocean

4981

03:40:02,150 --> 03:40:00,479

we're getting imagery from the Kahan the

4982

03:40:04,550 --> 03:40:02,160

uh Kahana II

4983

03:40:06,229 --> 03:40:04,560

this is United launch alliance's uh

4984

03:40:08,050 --> 03:40:06,239

vehicle of course they're partners with

4985

03:40:11,389 --> 03:40:08,060

this mission

4986

03:40:13,550 --> 03:40:11,399

launching lofted into space after the

4987

03:40:17,030 --> 03:40:13,560

primary mission jpss2 was accomplished

4988

03:40:19,190 --> 03:40:17,040

and then dropping off lofted to come

4989

03:40:21,530 --> 03:40:19,200

back into the Earth to prove out a

4990

03:40:24,410 --> 03:40:21,540

technology demonstration that you can

4991

03:40:26,269 --> 03:40:24,420

come back with a large AeroShell

4992

03:40:28,610 --> 03:40:26,279

back to Earth

4993

03:40:31,130 --> 03:40:28,620

and safely splashed down as it just has

4994

03:40:33,410 --> 03:40:31,140

right there as we're watching it in the

4995

03:40:34,910 --> 03:40:33,420

Pacific Ocean

4996

03:40:38,210 --> 03:40:34,920

now you mentioned something that I

4997

03:40:41,090 --> 03:40:38,220

thought was uh interesting the

4998

03:40:42,889 --> 03:40:41,100

the team on board the boat is going to

4999

03:40:45,290 --> 03:40:42,899

make a decision on whether or not to go

5000

03:40:48,110 --> 03:40:45,300

pick this up so kind of talk me through

5001
03:40:50,929 --> 03:40:48,120
what that decision-making process is yes

5002
03:40:54,290 --> 03:40:50,939
so there was some discussion early on

5003
03:40:58,309 --> 03:40:54,300
um you know Hawaii is three hours behind

5004
03:41:00,410 --> 03:40:58,319
us so it's it's still dark there and we

5005
03:41:03,410 --> 03:41:00,420
discussed whether we wanted to pick the

5006
03:41:04,550 --> 03:41:03,420
spacecraft up at night for safety

5007
03:41:06,170 --> 03:41:04,560
concerns

5008
03:41:07,690 --> 03:41:06,180
um we we all agreed that that will be

5009
03:41:12,130 --> 03:41:07,700
the captain's decision

5010
03:41:19,309 --> 03:41:15,950
so I'm we're waiting to see waiting to

5011
03:41:22,190 --> 03:41:19,319
uh see see what happens now we do have

5012
03:41:25,070 --> 03:41:22,200
if they do decide to wait until daylight

5013
03:41:28,250 --> 03:41:25,080

to pick pick the spacecraft up we do

5014

03:41:30,349 --> 03:41:28,260

have inflatable buoys to attach to it to

5015

03:41:33,170 --> 03:41:30,359

keep it floating while we while we wait

5016

03:41:34,969 --> 03:41:33,180

but again it's the captain's decision so

5017

03:41:37,610 --> 03:41:34,979

we will again it's the captain's

5018

03:41:40,190 --> 03:41:37,620

decision so we will wait and see what

5019

03:41:42,889 --> 03:41:40,200

what what happens and we're in contact

5020

03:41:45,830 --> 03:41:42,899

with a member of the crew the recovery

5021

03:41:47,809 --> 03:41:45,840

team that's on board the recovery vessel

5022

03:41:50,870 --> 03:41:47,819

and so we uh we'll hope to get some

5023

03:41:53,570 --> 03:41:50,880

information from uh that person to find

5024

03:41:56,269 --> 03:41:53,580

out if uh indeed they are going to make

5025

03:41:58,969 --> 03:41:56,279

the recovery this evening or as you said

5026

03:42:01,010 --> 03:41:58,979

wait until uh first light and they can

5027

03:42:02,750 --> 03:42:01,020

have a better look at it what we do know

5028

03:42:04,670 --> 03:42:02,760

as you mentioned they will be able to

5029

03:42:07,309 --> 03:42:04,680

secure it with buoy so you're saying

5030

03:42:10,190 --> 03:42:07,319

they can get they will get close enough

5031

03:42:13,250 --> 03:42:10,200

to get those buoys on it before uh

5032

03:42:17,769 --> 03:42:13,260

daylight yeah so we we actually have

5033

03:42:20,450 --> 03:42:17,779

um aboard the boat we have boat hooks

5034

03:42:23,389 --> 03:42:20,460

extendable boat hooks that we can pull

5035

03:42:27,050 --> 03:42:23,399

right up against the the vehicle and use

5036

03:42:31,309 --> 03:42:27,060

those boat hooks to to access the the

5037

03:42:36,349 --> 03:42:31,319

lanyard the um the lines on the back for

5038

03:42:36,359 --> 03:42:39,910

foreign

5039

03:42:45,410 --> 03:42:42,590

let's take a break for a moment and uh

5040

03:42:48,170 --> 03:42:45,420

talk to another member of the successful

5041

03:42:50,450 --> 03:42:48,180

lofta team out in Langley Virginia

5042

03:42:56,570 --> 03:42:50,460

Hampton Virginia at the Langley Research

5043

03:43:01,790 --> 03:42:59,330

yes I am here with Ron mersky the branch

5044

03:43:05,809 --> 03:43:01,800

head of the atmospheric flights and

5045

03:43:08,389 --> 03:43:05,819

entry systems Branch Branch quite a

5046

03:43:11,090 --> 03:43:08,399

mouthful it is a mouthful now Ron can

5047

03:43:13,190 --> 03:43:11,100

you tell me I speaking of mouthful you

5048

03:43:15,889 --> 03:43:13,200

had one of the widest Smiles in the

5049

03:43:17,809 --> 03:43:15,899

entire room as as the data was coming in

5050

03:43:19,670 --> 03:43:17,819

also as we were getting to splash down

5051

03:43:22,010 --> 03:43:19,680

can you tell me what you were feeling

5052

03:43:24,410 --> 03:43:22,020

and how you're feeling right now oh yeah

5053

03:43:26,690 --> 03:43:24,420

just incredible this has been many years

5054

03:43:29,510 --> 03:43:26,700

the team that we've had here has been

5055

03:43:33,050 --> 03:43:29,520

struggling very hard had a lot of a lot

5056

03:43:36,110 --> 03:43:33,060

of issues to overcome and did it just

5057

03:43:38,269 --> 03:43:36,120

brilliantly and so just very proud of

5058

03:43:41,690 --> 03:43:38,279

the folks and just being associated with

5059

03:43:44,090 --> 03:43:41,700

them absolutely absolutely and for you

5060

03:43:46,250 --> 03:43:44,100

in particular what data are you looking

5061

03:43:49,130 --> 03:43:46,260

forward to getting back from this from

5062

03:43:53,389 --> 03:43:49,140

this demonstration today well the

5063

03:43:55,910 --> 03:43:53,399

laughter is the applicability of new

5064

03:43:59,690 --> 03:43:55,920

technologies that we're developing we're

5065

03:44:03,070 --> 03:43:59,700

looking at the inflatable structures the

5066

03:44:06,469 --> 03:44:03,080

flexible thermal Protection Systems and

5067

03:44:08,450 --> 03:44:06,479

really looking to see that these new

5068

03:44:10,370 --> 03:44:08,460

types of technologies have performed and

5069

03:44:13,250 --> 03:44:10,380

it's looking like they really did and

5070

03:44:14,710 --> 03:44:13,260

did it in a in a very good way and so

5071

03:44:17,510 --> 03:44:14,720

now we're looking towards the future

5072

03:44:19,250 --> 03:44:17,520

speaking of the future I know that we

5073

03:44:21,830 --> 03:44:19,260

would need something larger if we were

5074

03:44:23,929 --> 03:44:21,840

going to land on Mars so I'm assuming

5075

03:44:25,790 --> 03:44:23,939

that that's somewhere down the way but

5076

03:44:27,590 --> 03:44:25,800

also what are we looking forward to in

5077

03:44:30,710 --> 03:44:27,600

the future and how is this test going to

5078

03:44:33,590 --> 03:44:30,720

help us to get there so you know this

5079

03:44:36,590 --> 03:44:33,600

test here does a number of things first

5080

03:44:39,290 --> 03:44:36,600

of all for that larger Mars mission that

5081

03:44:41,690 --> 03:44:39,300

you talked about we do need to have a

5082

03:44:44,030 --> 03:44:41,700

number of steps along what we call our

5083

03:44:46,550 --> 03:44:44,040

road map to get to the point that we can

5084

03:44:48,590 --> 03:44:46,560

land humans on Mars This is the step to

5085

03:44:50,690 --> 03:44:48,600

get us to the six meters now we've got

5086

03:44:52,910 --> 03:44:50,700

to look to making larger and larger

5087

03:44:55,070 --> 03:44:52,920

hi-hats which are part of what we call

5088

03:44:57,309 --> 03:44:55,080

the mission architecture for landing on

5089

03:45:00,349 --> 03:44:57,319

Mars in the future but in the near term

5090

03:45:02,990 --> 03:45:00,359

there's a few things that we can do here

5091

03:45:04,090 --> 03:45:03,000

currently we're working with commercial

5092

03:45:06,050 --> 03:45:04,100

sector

5093

03:45:08,389 --> 03:45:06,060

companies and looking at different

5094

03:45:10,870 --> 03:45:08,399

applications coming back from CIS lunar

5095

03:45:13,429 --> 03:45:10,880

space with Hardware

5096

03:45:17,590 --> 03:45:13,439

bringing it around the orbit of the

5097

03:45:20,030 --> 03:45:17,600

earth then also this opens up

5098

03:45:23,870 --> 03:45:20,040

possibilities for other future NASA

5099

03:45:27,950 --> 03:45:23,880

missions situations where there might be

5100

03:45:30,530 --> 03:45:27,960

Mass problems on different missions then

5101
03:45:32,990 --> 03:45:30,540
we can reduce those issues with the hiad

5102
03:45:34,969 --> 03:45:33,000
so now we talked far into the future

5103
03:45:36,830 --> 03:45:34,979
like Mars we talked nearer into the

5104
03:45:39,110 --> 03:45:36,840
future like maybe doing down Mass

5105
03:45:41,450 --> 03:45:39,120
missions but in the near future in the

5106
03:45:43,969 --> 03:45:41,460
coming weeks what is the data collection

5107
03:45:45,650 --> 03:45:43,979
and datum I guess uh you know monitoring

5108
03:45:49,790 --> 03:45:45,660
going to look like in these coming weeks

5109
03:45:51,769 --> 03:45:49,800
well um I think you saw that there was

5110
03:45:54,830 --> 03:45:51,779
an ejectable data recorder that came out

5111
03:45:57,530 --> 03:45:54,840
we will have to recover that and look at

5112
03:46:00,370 --> 03:45:57,540
the data that we received through the

5113
03:46:03,229 --> 03:46:00,380

entry trajectory and

5114

03:46:06,349 --> 03:46:03,239

hopefully it gives us the information

5115

03:46:08,090 --> 03:46:06,359

that we want that it was nominal it

5116

03:46:09,769 --> 03:46:08,100

looks like everything was good and so

5117

03:46:11,450 --> 03:46:09,779

it's all very exciting right now it is

5118

03:46:13,070 --> 03:46:11,460

incredibly exciting thank you so

5119

03:46:14,870 --> 03:46:13,080

much Ron for stepping out and sharing

5120

03:46:16,010 --> 03:46:14,880

some of that excitement with us with

5121

03:46:17,750 --> 03:46:16,020

that I'm going to send it back over to

5122

03:46:21,050 --> 03:46:17,760

you

5123

03:46:23,929 --> 03:46:21,060

back here at the mission director Center

5124

03:46:26,929 --> 03:46:23,939

tracking the approach of the recovery

5125

03:46:28,130 --> 03:46:26,939

ship to the lofted inflatable

5126
03:46:30,410 --> 03:46:28,140
decelerator

5127
03:46:34,130 --> 03:46:30,420
and we're getting closer Sean we're with

5128
03:46:37,070 --> 03:46:34,140
Sean Hancock Hancock engineer lead

5129
03:46:38,030 --> 03:46:37,080
engineer for the uh the pla the payload

5130
03:46:40,849 --> 03:46:38,040
adapter

5131
03:46:44,030 --> 03:46:40,859
who's been sitting with us for the past

5132
03:46:46,729 --> 03:46:44,040
hour and a half as we have been tracking

5133
03:46:48,110 --> 03:46:46,739
the lofted technology demonstration and

5134
03:46:50,090 --> 03:46:48,120
uh looks like we're getting a little

5135
03:46:52,309 --> 03:46:50,100
closer it does look like we're getting

5136
03:46:55,790 --> 03:46:52,319
closer I was just sending uh sending a

5137
03:46:57,050 --> 03:46:55,800
note to the to the recovery ship asking

5138
03:46:58,309 --> 03:46:57,060

um how much longer they thought they

5139

03:47:01,130 --> 03:46:58,319

were going to be until they were there

5140

03:47:04,190 --> 03:47:01,140

but uh just looking at the video uh it's

5141

03:47:05,929 --> 03:47:04,200

getting much bigger in the picture I'm

5142

03:47:07,969 --> 03:47:05,939

amazed to see that parts of it are still

5143

03:47:10,250 --> 03:47:07,979

glowing

5144

03:47:12,050 --> 03:47:10,260

um yeah and you just got this

5145

03:47:14,269 --> 03:47:12,060

information from our lofted

5146

03:47:16,370 --> 03:47:14,279

communication team they said that uh

5147

03:47:18,650 --> 03:47:16,380

Loft had landed close to the recovery

5148

03:47:20,870 --> 03:47:18,660

ship and after assessing the situation

5149

03:47:23,210 --> 03:47:20,880

the crew on board the kahano 2

5150

03:47:27,590 --> 03:47:23,220

determined the conditions are favorable

5151
03:47:30,349 --> 03:47:27,600
to immediately begin recovery operations

5152
03:47:33,110 --> 03:47:30,359
and that of course will bring lofted on

5153
03:47:35,450 --> 03:47:33,120
board the ship and so indeed as we get

5154
03:47:38,150 --> 03:47:35,460
closer what we are witnessing live

5155
03:47:43,370 --> 03:47:38,160
is the recovery operation

5156
03:47:48,590 --> 03:47:45,830
so I I'll just say this is a scenario

5157
03:47:51,170 --> 03:47:48,600
that we never envisioned that everything

5158
03:47:53,330 --> 03:47:51,180
would work this well

5159
03:47:56,330 --> 03:47:53,340
um you know we we all thought at least

5160
03:47:59,870 --> 03:47:56,340
the best possible outcome is that we we

5161
03:48:02,269 --> 03:47:59,880
land in the water and maybe two or three

5162
03:48:04,490 --> 03:48:02,279
hours later we're at the at the vehicle

5163
03:48:07,490 --> 03:48:04,500

and able to recover it

5164

03:48:15,050 --> 03:48:07,500

um this is just beyond our wildest

5165

03:48:20,510 --> 03:48:17,510

and while it looks like

5166

03:48:22,969 --> 03:48:20,520

it doesn't appear that we're moving we

5167

03:48:25,790 --> 03:48:22,979

indeed are this ship is making progress

5168

03:48:28,790 --> 03:48:25,800

we started off Sean when Loft did

5169

03:48:31,729 --> 03:48:28,800

splashed down it was beyond the horizon

5170

03:48:33,590 --> 03:48:31,739

it disappeared behind the horizon line

5171

03:48:35,870 --> 03:48:33,600

out there in the Pacific Ocean and then

5172

03:48:39,229 --> 03:48:35,880

the parachute gently came down right

5173

03:48:40,729 --> 03:48:39,239

behind it but once we saw it on the

5174

03:48:43,550 --> 03:48:40,739

horizon we've been making steady

5175

03:48:46,309 --> 03:48:43,560

progress towards getting a little closer

5176
03:48:47,870 --> 03:48:46,319
and a little closer and now less than a

5177
03:48:50,150 --> 03:48:47,880
mile away it shouldn't be too long

5178
03:48:53,510 --> 03:48:50,160
before we've got it

5179
03:48:55,790 --> 03:48:53,520
right close up next to the boat yeah so

5180
03:48:57,590 --> 03:48:55,800
the boat the Kahana too is a is a fairly

5181
03:48:59,450 --> 03:48:57,600
slow boat I think it's top speed is

5182
03:49:02,929 --> 03:48:59,460
about 10 knots

5183
03:49:05,269 --> 03:49:02,939
um but but uh we're making really

5184
03:49:10,130 --> 03:49:05,279
really uh really good progress uh

5185
03:49:14,929 --> 03:49:12,170
and so what we're seeing Sean

5186
03:49:17,750 --> 03:49:14,939
um to describe to the audience is that

5187
03:49:21,590 --> 03:49:17,760
inflated Arrow shell is the lower wide

5188
03:49:24,349 --> 03:49:21,600

part in the lighter colored uh part of

5189

03:49:27,530 --> 03:49:24,359

um of lofted and in the center

5190

03:49:29,090 --> 03:49:27,540

is uh the vehicle kind of described the

5191

03:49:31,309 --> 03:49:29,100

two parts that we're seeing there yeah

5192

03:49:33,170 --> 03:49:31,319

so the the dark part in the middle is

5193

03:49:36,349 --> 03:49:33,180

the center body

5194

03:49:38,090 --> 03:49:36,359

um and we would expect it to be uh to be

5195

03:49:40,190 --> 03:49:38,100

cooler than the AeroShell because it's

5196

03:49:43,849 --> 03:49:40,200

in what we call the Wake

5197

03:49:46,969 --> 03:49:43,859

um and actually there uh there was a sub

5198

03:49:48,950 --> 03:49:46,979

experiment uh on this flight the part of

5199

03:49:53,330 --> 03:49:48,960

the the Foss the fiber optic sensing

5200

03:49:55,429 --> 03:49:53,340

system uh was was part of the uh a

5201
03:49:57,769 --> 03:49:55,439
technology demonstration Mission within

5202
03:50:00,170 --> 03:49:57,779
our technology demonstration system and

5203
03:50:03,950 --> 03:50:00,180
we had a fiber optic uh

5204
03:50:06,050 --> 03:50:03,960
um line along along the back of the the

5205
03:50:09,229 --> 03:50:06,060
rigid body to measure the temperature

5206
03:50:12,469 --> 03:50:09,239
distribution uh inside that's that area

5207
03:50:15,229 --> 03:50:12,479
we call the bowl and uh there's no real

5208
03:50:17,990 --> 03:50:15,239
good modeling or any data really of what

5209
03:50:19,809 --> 03:50:18,000
goes on back in that Lake area there's

5210
03:50:22,370 --> 03:50:19,819
you know it's predicted that there's

5211
03:50:23,690 --> 03:50:22,380
Vortex back there and probably not a lot

5212
03:50:25,130 --> 03:50:23,700
of heating but we don't really know how

5213
03:50:27,290 --> 03:50:25,140

to predict it

5214

03:50:29,330 --> 03:50:27,300

um so you know looking at the colors we

5215

03:50:31,309 --> 03:50:29,340

can generally infer that it's it's

5216

03:50:34,969 --> 03:50:31,319

fairly cool compared to the the

5217

03:50:36,469 --> 03:50:34,979

AeroShell but uh this this flight uh and

5218

03:50:38,210 --> 03:50:36,479

and the air shows obviously the the

5219

03:50:42,830 --> 03:50:38,220

mushroom shaped upside down mushroom

5220

03:50:45,530 --> 03:50:42,840

shaped um uh glowing uh shape that we're

5221

03:50:47,450 --> 03:50:45,540

looking at so this flight will uh you

5222

03:50:50,150 --> 03:50:47,460

know this flight will give us a new tool

5223

03:50:53,330 --> 03:50:50,160

to analyze analyze the temperature

5224

03:51:12,469 --> 03:50:53,340

distribution in in the um in the wake of

5225

03:51:12,479 --> 03:51:15,889

foreign

5226
03:51:20,090 --> 03:51:17,870
if you're just joining us we are

5227
03:51:22,790 --> 03:51:20,100
tracking

5228
03:51:25,130 --> 03:51:22,800
the recovery

5229
03:51:27,229 --> 03:51:25,140
of the return vehicle

5230
03:51:28,790 --> 03:51:27,239
from the lofted technology demonstration

5231
03:51:30,830 --> 03:51:28,800
it is in the center of your screen

5232
03:51:32,090 --> 03:51:30,840
floating out in the middle of the

5233
03:51:34,550 --> 03:51:32,100
Pacific Ocean

5234
03:51:37,729 --> 03:51:34,560
couple hundred miles away from the coast

5235
03:51:37,739 --> 03:51:42,530
a captain is steaming towards

5236
03:51:42,540 --> 03:52:28,910
lofted

5237
03:52:28,920 --> 03:52:34,070
and as we continue to get closer

5238
03:52:37,550 --> 03:52:36,290

I want to give you an update on the JP

5239

03:52:41,210 --> 03:52:37,560

SS2

5240

03:52:42,530 --> 03:52:41,220

satellite that was put into orbit

5241

03:52:45,830 --> 03:52:42,540

just about

5242

03:52:47,929 --> 03:52:45,840

two hours and 15 minutes ago

5243

03:52:50,210 --> 03:52:47,939

after the successful launch of the atlas

5244

03:52:56,210 --> 03:52:52,790

at this time we understand the team has

5245

03:52:58,130 --> 03:52:56,220

not yet received data to confirm jpss2

5246

03:53:00,530 --> 03:52:58,140

solar array deployment

5247

03:53:03,530 --> 03:53:00,540

now there may not be an issue

5248

03:53:07,250 --> 03:53:03,540

but the jpss2 team

5249

03:53:09,110 --> 03:53:07,260

NASA and Noah are monitoring closely the

5250

03:53:16,490 --> 03:53:09,120

Telemetry data

5251
03:53:20,210 --> 03:53:18,530
we'll certainly follow up with that you

5252
03:53:21,950 --> 03:53:20,220
can go to our blog

5253
03:53:23,950 --> 03:53:21,960
on jpss2

5254
03:53:28,010 --> 03:53:23,960
you see it at the bottom of your screen

5255
03:53:30,610 --> 03:53:28,020
blogs.nasa.gov forward slash jpss

5256
03:53:34,010 --> 03:53:30,620
hyphen two again

5257
03:53:40,550 --> 03:53:34,020
blogs.nasa.gov forward slash jpss hyphen

5258
03:53:45,769 --> 03:53:43,550
loft is starting to come into

5259
03:53:48,769 --> 03:53:45,779
coming to focus here Sean in the

5260
03:53:50,450 --> 03:53:48,779
bouncing waves of the Pacific Ocean yeah

5261
03:53:53,690 --> 03:53:50,460
it's getting so close you can actually

5262
03:53:56,030 --> 03:53:53,700
see the the straps uh on the whole

5263
03:53:58,490 --> 03:53:56,040

holding the TPS the catenaries on the

5264

03:54:01,790 --> 03:53:58,500

back of the TPS uh you can see our

5265

03:54:03,530 --> 03:54:01,800

cameras on the on the AFT side of the of

5266

03:54:05,750 --> 03:54:03,540

the spacecraft you can make out a lot of

5267

03:54:07,010 --> 03:54:05,760

detail

5268

03:54:08,690 --> 03:54:07,020

now

5269

03:54:12,830 --> 03:54:08,700

don't want to put you on the spot but I

5270

03:54:14,510 --> 03:54:12,840

am part of that lofted return vehicle is

5271

03:54:16,790 --> 03:54:14,520

glowing we know this is an infrared

5272

03:54:19,010 --> 03:54:16,800

camera so it's tracking heat signatures

5273

03:54:22,550 --> 03:54:19,020

what's your take on just your

5274

03:54:26,210 --> 03:54:22,560

observation on why that edge the left

5275

03:54:28,309 --> 03:54:26,220

part the left or the left side uh Edge

5276

03:54:32,689 --> 03:54:28,319

is glowing

5277

03:54:36,830 --> 03:54:32,699

um I'm not sure you know the vehicle is

5278

03:54:41,090 --> 03:54:36,840

you know it re-enters in a uh a a spin

5279

03:54:44,389 --> 03:54:41,100

so we're rotating at uh three row three

5280

03:54:47,090 --> 03:54:44,399

rotations per minute so you would think

5281

03:54:50,450 --> 03:54:47,100

that the uh you know we're gonna fly it

5282

03:54:53,809 --> 03:54:50,460

a bit of a pitch just because of the

5283

03:54:55,790 --> 03:54:53,819

because of the Mass properties of the of

5284

03:55:00,530 --> 03:54:55,800

the spacecraft so you would think that

5285

03:55:03,290 --> 03:55:00,540

the edges all the way around would be

5286

03:55:05,630 --> 03:55:03,300

um roughly the roughly the same

5287

03:55:08,090 --> 03:55:05,640

temperature so I'm not I'm not sure I

5288

03:55:10,610 --> 03:55:08,100

don't know that I could but again I'm

5289

03:55:12,290 --> 03:55:10,620

probably not the not the right person to

5290

03:55:14,630 --> 03:55:12,300

ask that question well this much we know

5291

03:55:17,330 --> 03:55:14,640

we know that uh

5292

03:55:19,189 --> 03:55:17,340

it's reflecting off the water and

5293

03:55:21,590 --> 03:55:19,199

there's a fair amount of moonlight out

5294

03:55:24,170 --> 03:55:21,600

we just passed a full moon just a few

5295

03:55:26,030 --> 03:55:24,180

days ago and so the team has the benefit

5296

03:55:27,170 --> 03:55:26,040

of having

5297

03:55:29,689 --> 03:55:27,180

um

5298

03:55:31,189 --> 03:55:29,699

a pretty pretty bright Moonlight out

5299

03:55:33,229 --> 03:55:31,199

there at the moment

5300

03:55:35,809 --> 03:55:33,239

they do and I'm looking at the video and

5301

03:55:38,510 --> 03:55:35,819

it looks like a 180 degrees opposite

5302

03:55:40,849 --> 03:55:38,520

from that one side to the other

5303

03:55:44,630 --> 03:55:40,859

the other Edge is also

5304

03:55:48,650 --> 03:55:44,640

also a glowing similarly

5305

03:55:58,130 --> 03:55:48,660

and as our camera recalibrates

5306

03:56:04,910 --> 03:56:01,550

you know as you look at this Sean

5307

03:56:07,250 --> 03:56:04,920

you know it's striking to me how nicely

5308

03:56:09,290 --> 03:56:07,260

it is floating

5309

03:56:11,570 --> 03:56:09,300

fully intact

5310

03:56:13,370 --> 03:56:11,580

still fully inflated

5311

03:56:15,830 --> 03:56:13,380

and this was a mission that I heard some

5312

03:56:17,630 --> 03:56:15,840

Engineers say hey look if we can just

5313

03:56:19,550 --> 03:56:17,640

get some partial data it doesn't

5314

03:56:22,910 --> 03:56:19,560

necessarily have to come down perfectly

5315

03:56:25,490 --> 03:56:22,920

like this we just want some data to be

5316

03:56:28,210 --> 03:56:25,500

able to advance this technology

5317

03:56:30,650 --> 03:56:28,220

and there it is sitting in the ocean

5318

03:56:32,809 --> 03:56:30,660

completely intact

5319

03:56:34,610 --> 03:56:32,819

it could have broken apart if any of

5320

03:56:37,490 --> 03:56:34,620

those straps would have hung up on some

5321

03:56:40,010 --> 03:56:37,500

part of the spacecraft or the upper

5322

03:56:41,450 --> 03:56:40,020

stage of the Centaur so many things that

5323

03:56:43,309 --> 03:56:41,460

needed to go right

5324

03:56:45,530 --> 03:56:43,319

and I know it's early

5325

03:56:47,689 --> 03:56:45,540

but just to see this

5326

03:56:48,889 --> 03:56:47,699

floating in the Pacific Ocean fully

5327

03:56:52,070 --> 03:56:48,899

intact that's

5328

03:56:54,710 --> 03:56:52,080

that's impressive it definitely is I

5329

03:56:57,710 --> 03:56:54,720

mean it looks like

5330

03:57:00,410 --> 03:56:57,720

it looks like it did uh you know during

5331

03:57:01,670 --> 03:57:00,420

ground testing before I mean you know

5332

03:57:04,550 --> 03:57:01,680

we're looking through an infrared camera

5333

03:57:08,210 --> 03:57:04,560

so it will probably look a little a

5334

03:57:11,330 --> 03:57:08,220

little uh Char uh when we get get to get

5335

03:57:13,130 --> 03:57:11,340

to see it uh in person but yeah it looks

5336

03:57:15,130 --> 03:57:13,140

wholly intact

5337

03:57:19,550 --> 03:57:15,140

um

5338

03:57:21,769 --> 03:57:19,560

I mean this is probably beyond what any

5339

03:57:23,630 --> 03:57:21,779

of us would have expected

5340

03:57:26,030 --> 03:57:23,640

um

5341

03:57:27,349 --> 03:57:26,040

was that charring that you're you you've

5342

03:57:29,210 --> 03:57:27,359

just described

5343

03:57:31,309 --> 03:57:29,220

that in and of itself will tell a story

5344

03:57:33,830 --> 03:57:31,319

right that in and of itself will will

5345

03:57:36,170 --> 03:57:33,840

tell you about its re-entry through the

5346

03:57:39,530 --> 03:57:36,180

Earth's atmosphere it should I mean the

5347

03:57:43,729 --> 03:57:39,540

data that we so we have uh thermocouples

5348

03:57:47,389 --> 03:57:43,739

uh and and heat flux gauges uh scatter

5349

03:57:48,950 --> 03:57:47,399

all about the the uh the thermal

5350

03:57:50,929 --> 03:57:48,960

protection system and at different

5351
03:57:52,550 --> 03:57:50,939
layers throughout the multi-layer

5352
03:57:55,910 --> 03:57:52,560
thermal protection system and different

5353
03:57:57,650 --> 03:57:55,920
layers throughout the the um the thermal

5354
03:57:59,630 --> 03:57:57,660
protection system so that should really

5355
03:58:02,210 --> 03:57:59,640
be able to provide us with the data that

5356
03:58:04,610 --> 03:58:02,220
we need to figure out what happened uh

5357
03:58:07,910 --> 03:58:04,620
during the during the re-entry uh

5358
03:58:09,110 --> 03:58:07,920
getting to see the getting to see the

5359
03:58:14,450 --> 03:58:09,120
the

5360
03:58:19,130 --> 03:58:14,460
charring and whatnot really will help us

5361
03:58:20,870 --> 03:58:19,140
uh see how the materials behave when

5362
03:58:22,729 --> 03:58:20,880
exposed to that environment so that's

5363
03:58:26,090 --> 03:58:22,739

really part of the value of getting

5364

03:58:28,309 --> 03:58:26,100

getting the the spacecraft back is you

5365

03:58:30,889 --> 03:58:28,319

know just being able to see physically

5366

03:58:32,150 --> 03:58:30,899

you know what happened to the to the

5367

03:58:33,889 --> 03:58:32,160

spacecraft because of the environment

5368

03:58:35,150 --> 03:58:33,899

that it was that was in and then the

5369

03:58:36,950 --> 03:58:35,160

instrumentation should be able to tell

5370

03:58:38,269 --> 03:58:36,960

us what the environment is if you're

5371

03:58:40,070 --> 03:58:38,279

just joining us we're taking a break

5372

03:58:42,110 --> 03:58:40,080

from our live imagery that we're

5373

03:58:43,370 --> 03:58:42,120

bringing you of the lofted uh

5374

03:58:45,769 --> 03:58:43,380

demonstration the technology

5375

03:58:49,010 --> 03:58:45,779

demonstration we've been tracking the

5376

03:58:52,550 --> 03:58:49,020

return of this vehicle from space the

5377

03:58:55,429 --> 03:58:52,560

first time uh that lofted has returned

5378

03:58:58,849 --> 03:58:55,439

from space and showing off its ability

5379

03:59:01,550 --> 03:58:58,859

to return slow down enough of the

5380

03:59:04,790 --> 03:59:01,560

atmosphere to bring back anything from a

5381

03:59:06,229 --> 03:59:04,800

rocket engine uh to a spacecraft to as

5382

03:59:08,750 --> 03:59:06,239

you mentioned earlier Sean something

5383

03:59:10,670 --> 03:59:08,760

that was built on the moon this is how

5384

03:59:14,510 --> 03:59:10,680

you would get it back something that

5385

03:59:16,849 --> 03:59:14,520

could be compacted down into uh the

5386

03:59:19,130 --> 03:59:16,859

space on top of a rocket but then when

5387

03:59:21,830 --> 03:59:19,140

it returns it could come out and expand

5388

03:59:24,290 --> 03:59:21,840

with enough ability and enough surface

5389

03:59:26,870 --> 03:59:24,300

area to slow down whatever it is that's

5390

03:59:29,750 --> 03:59:26,880

bringing back down safely onto the

5391

03:59:32,330 --> 03:59:29,760

surface of the Earth yeah and and really

5392

03:59:35,330 --> 03:59:32,340

uh you know aerodynamic decelerators are

5393

03:59:38,689 --> 03:59:35,340

the way to go uh when when you're uh

5394

03:59:41,689 --> 03:59:38,699

talking about uh atmospheric uh entry

5395

03:59:44,269 --> 03:59:41,699

you know Studies have shown that an

5396

03:59:46,429 --> 03:59:44,279

aerodynamic accelerate decelerator can

5397

03:59:48,309 --> 03:59:46,439

reduce the amount of mass that you have

5398

03:59:51,889 --> 03:59:48,319

to take up to low earth orbit by half

5399

03:59:54,349 --> 03:59:51,899

versus using a propulsive system so you

5400

03:59:57,290 --> 03:59:54,359

know this is a major step forward in uh

5401
04:00:00,590 --> 03:59:57,300
in technology weight is everything when

5402
04:00:03,010 --> 04:00:00,600
it comes to space flight so as you talk

5403
04:00:05,030 --> 04:00:03,020
about the mass uh and bringing it back

5404
04:00:07,370 --> 04:00:05,040
more mass

5405
04:00:10,610 --> 04:00:07,380
is much better and now we're looking

5406
04:00:12,590 --> 04:00:10,620
live wow

5407
04:00:16,610 --> 04:00:12,600
from the camera mounted to the back of

5408
04:00:21,349 --> 04:00:19,370
and it looks like Sean they are readying

5409
04:00:24,050 --> 04:00:21,359
the crane

5410
04:00:26,030 --> 04:00:24,060
yeah at the back of the boat yeah so you

5411
04:00:28,309 --> 04:00:26,040
can see on the back of the boat

5412
04:00:32,929 --> 04:00:28,319
um the they're they're hooking up the

5413
04:00:36,830 --> 04:00:32,939

crane uh right in the center of the the

5414

04:00:38,210 --> 04:00:36,840

boat uh there that's our stand that

5415

04:00:41,150 --> 04:00:38,220

we're going to set the spacecraft on

5416

04:00:43,610 --> 04:00:41,160

once we lift it up out of the water and

5417

04:00:45,889 --> 04:00:43,620

looks like they're getting ready to

5418

04:00:48,110 --> 04:00:45,899

put the crane over the side to try and

5419

04:00:51,830 --> 04:00:48,120

pick up the spacecraft yeah folks we are

5420

04:00:54,590 --> 04:00:51,840

bringing you live the recovery team

5421

04:00:56,990 --> 04:00:54,600

making an effort

5422

04:00:58,910 --> 04:00:57,000

to pluck lofted out of the Pacific Ocean

5423

04:01:22,130 --> 04:00:58,920

after returning

5424

04:01:27,349 --> 04:01:24,830

and Sean this operation it does take

5425

04:01:28,790 --> 04:01:27,359

some time so we would expect this crew

5426
04:01:30,650 --> 04:01:28,800
to be working at this it's not going to

5427
04:01:34,370 --> 04:01:30,660
be instantaneous they've got to be very

5428
04:01:36,710 --> 04:01:34,380
careful about bringing something uh out

5429
04:01:38,689 --> 04:01:36,720
of the water that presumably looks like

5430
04:01:40,370 --> 04:01:38,699
it's in about you know six to ten foot

5431
04:01:42,950 --> 04:01:40,380
Seas

5432
04:01:45,950 --> 04:01:42,960
yeah so we do have procedures uh that

5433
04:01:47,630 --> 04:01:45,960
are written and that generally adds to

5434
04:01:48,889 --> 04:01:47,640
the time because we want to you know we

5435
04:01:50,510 --> 04:01:48,899
want to be careful we don't want to do

5436
04:01:52,490 --> 04:01:50,520
anything that could risk the spacecraft

5437
04:01:54,650 --> 04:01:52,500
especially now

5438
04:01:56,750 --> 04:01:54,660

um so yeah I I fully expect that this

5439

04:01:58,610 --> 04:01:56,760

will take a little bit of uh time and

5440

04:02:01,010 --> 04:01:58,620

effort to get that out of the water and

5441

04:02:04,790 --> 04:02:01,020

onto the boat

5442

04:02:06,349 --> 04:02:04,800

and so let's review for the audience how

5443

04:02:09,530 --> 04:02:06,359

we got here

5444

04:02:11,929 --> 04:02:09,540

it all began with a launch at 1 49 a.m

5445

04:02:14,689 --> 04:02:11,939

Pacific time

5446

04:02:18,349 --> 04:02:14,699

with this and then about an hour later

5447

04:02:20,510 --> 04:02:18,359

this the separation of lofted the low

5448

04:02:23,090 --> 04:02:20,520

earth orbit flight test of an inflatable

5449

04:02:26,510 --> 04:02:23,100

decelerator this is a inflatable heat

5450

04:02:28,969 --> 04:02:26,520

shield it can compact down into the size

5451
04:02:31,490 --> 04:02:28,979
of the fairing on top of a rocket but

5452
04:02:33,290 --> 04:02:31,500
then expand as you see it here

5453
04:02:36,110 --> 04:02:33,300
rotating

5454
04:02:37,910 --> 04:02:36,120
as it falls back to Earth

5455
04:02:41,090 --> 04:02:37,920
to potentially one day bring back

5456
04:02:43,189 --> 04:02:41,100
spacecraft Hardware people

5457
04:02:45,050 --> 04:02:43,199
back to Earth that have come

5458
04:02:47,450 --> 04:02:45,060
from either another planet or the moon

5459
04:02:50,090 --> 04:02:47,460
and then this shot

5460
04:02:53,389 --> 04:02:50,100
the return of lofted under a parachute

5461
04:02:56,330 --> 04:02:53,399
the bottom glowing red hot

5462
04:02:59,990 --> 04:02:56,340
on the infrared camera after it returned

5463
04:03:02,210 --> 04:03:00,000

to the Searing heat of reentry 2 600

5464

04:03:04,670 --> 04:03:02,220

degrees Fahrenheit

5465

04:03:06,290 --> 04:03:04,680

marking a signature in the sky that we

5466

04:03:07,670 --> 04:03:06,300

were readily able to pick up with our

5467

04:03:10,429 --> 04:03:07,680

camera

5468

04:03:13,429 --> 04:03:10,439

as it fell gently down into the Pacific

5469

04:03:16,250 --> 04:03:13,439

Ocean the parachute then

5470

04:03:20,330 --> 04:03:16,260

falling delicately down

5471

04:03:22,729 --> 04:03:20,340

and now we have a fully inflated

5472

04:03:25,910 --> 04:03:22,739

lofted in the water

5473

04:03:28,010 --> 04:03:25,920

behind United launch Alliance Kahana II

5474

04:03:30,830 --> 04:03:28,020

as the crane in the back of that boat

5475

04:03:52,070 --> 04:03:30,840

now seeks to bring lofted

5476
04:03:57,110 --> 04:03:54,830
there's a light glowing just off the

5477
04:03:59,630 --> 04:03:57,120
back of the ship there Sean I know

5478
04:04:01,849 --> 04:03:59,640
that's that's our re-entry vehicle

5479
04:04:04,250 --> 04:04:01,859
and I think you can see the uh the

5480
04:04:06,170 --> 04:04:04,260
strobe lights uh finally from the from

5481
04:04:09,410 --> 04:04:06,180
the boat you can see the the flashing of

5482
04:04:11,450 --> 04:04:09,420
the strobe lights how about that and

5483
04:04:13,729 --> 04:04:11,460
that's this is no longer an infrared

5484
04:04:16,130 --> 04:04:13,739
camera we're actually just looking live

5485
04:04:18,650 --> 04:04:16,140
as we see it in our color camera

5486
04:04:20,330 --> 04:04:18,660
and uh now currently being blocked by

5487
04:04:22,429 --> 04:04:20,340
the camera it looks like that's the

5488
04:04:24,769 --> 04:04:22,439

strobe light right yes yes we have our

5489

04:04:26,389 --> 04:04:24,779

strobe lights and uh and reflective

5490

04:04:29,389 --> 04:04:26,399

mirrors on the back

5491

04:04:31,610 --> 04:04:29,399

uh to enable the VIS be able to visually

5492

04:04:33,710 --> 04:04:31,620

uh identify in the water so that makes

5493

04:04:47,389 --> 04:04:33,720

the strobe light brighter and easily

5494

04:04:52,670 --> 04:04:50,030

well Sean you can certainly see the glow

5495

04:04:55,729 --> 04:04:52,680

from the beacon also illuminating now

5496

04:04:58,370 --> 04:04:55,739

the center of lofted

5497

04:05:00,710 --> 04:04:58,380

an impressive technology demonstration

5498

04:05:02,570 --> 04:05:00,720

you know the technology in and of itself

5499

04:05:05,330 --> 04:05:02,580

is already impressive the ability to go

5500

04:05:06,950 --> 04:05:05,340

to other planets Mars come back from the

5501
04:05:08,510 --> 04:05:06,960
Moon bring things that were built on the

5502
04:05:10,429 --> 04:05:08,520
moon back on Earth

5503
04:05:13,130 --> 04:05:10,439
um but to see it

5504
04:05:14,469 --> 04:05:13,140
happen so as you guys like to say

5505
04:05:17,809 --> 04:05:14,479
nominally

5506
04:05:19,910 --> 04:05:17,819
which means everything is as good as an

5507
04:05:21,950 --> 04:05:19,920
engineer could expect it to be

5508
04:05:24,830 --> 04:05:21,960
that must be just an incredibly proud

5509
04:05:28,070 --> 04:05:24,840
moment for you and the lofta team oh it

5510
04:05:31,370 --> 04:05:28,080
is it it is definitely a proud moment it

5511
04:05:33,710 --> 04:05:31,380
it's beyond uh expectations and um you

5512
04:05:36,590 --> 04:05:33,720
know we're we're so excited to

5513
04:05:39,110 --> 04:05:36,600

have been able to take part part in this

5514

04:05:40,670 --> 04:05:39,120

and just think of the you know all the

5515

04:05:42,950 --> 04:05:40,680

benefits that this is gonna this is

5516

04:05:46,070 --> 04:05:42,960

gonna lead to uh for future exploration

5517

04:05:47,630 --> 04:05:46,080

and we will continue to track uh what

5518

04:05:50,030 --> 04:05:47,640

happens out there in the Pacific Ocean

5519

04:05:52,070 --> 04:05:50,040

just a couple hundred miles off uh the

5520

04:05:55,010 --> 04:05:52,080

coast of Hawaii there'll be much more

5521

04:05:57,830 --> 04:05:55,020

tune into our our blogs that uh we

5522

04:05:59,269 --> 04:05:57,840

follow in social media online uh we'll

5523

04:06:02,689 --> 04:05:59,279

bring you all the imagery of the

5524

04:06:05,570 --> 04:06:02,699

recovery uh when we have that uh in hand

5525

04:06:07,070 --> 04:06:05,580

oh my God but for now Sean Hancock lost

5526
04:06:09,590 --> 04:06:07,080
an engineer want to thank you very much

5527
04:06:11,809 --> 04:06:09,600
for joining us it was a pleasure to be

5528
04:06:14,030 --> 04:06:11,819
beside you as we track this Mission from

5529
04:06:16,250 --> 04:06:14,040
uh outer space all the way to back home

5530
04:06:17,450 --> 04:06:16,260
here at the Pacific Ocean Daryl I really

5531
04:06:19,010 --> 04:06:17,460
want to thank you for the opportunity

5532
04:06:21,050 --> 04:06:19,020
I'll just stay right out of the gate I

5533
04:06:23,510 --> 04:06:21,060
was terrified of uh doing this before

5534
04:06:25,370 --> 04:06:23,520
before it started but this is this has

5535
04:06:27,170 --> 04:06:25,380
been a blast it's been you know one of

5536
04:06:30,110 --> 04:06:27,180
the the funnest things I've I've gotten

5537
04:06:32,450 --> 04:06:30,120
to do and and getting to see see this uh

5538
04:06:34,370 --> 04:06:32,460

successfully uh go through this Mission

5539

04:06:35,750 --> 04:06:34,380

and share it with with you and and then

5540

04:06:37,490 --> 04:06:35,760

the viewing public has been really

5541

04:06:39,229 --> 04:06:37,500

really great so thank you very much for

5542

04:06:40,610 --> 04:06:39,239

those words appreciate that Sean thank

5543

04:06:42,710 --> 04:06:40,620

you Megan we'll send it back to you

5544

04:06:44,150 --> 04:06:42,720

great job Daryl Sean thank you so much

5545

04:06:45,889 --> 04:06:44,160

for that if you're just joining us we

5546

04:06:48,769 --> 04:06:45,899

are actually wrapping up NASA's live

5547

04:06:50,510 --> 04:06:48,779

coverage of jpss2 and lofted which

5548

04:06:53,389 --> 04:06:50,520

launched from Vandenberg space Force

5549

04:06:55,729 --> 04:06:53,399

Base here in central California less

5550

04:06:57,769 --> 04:06:55,739

than three hours ago NASA and its

5551
04:06:59,809 --> 04:06:57,779
Partners accomplished a lot today let's

5552
04:07:02,389 --> 04:06:59,819
show you some video again uh this is

5553
04:07:04,610 --> 04:07:02,399
live video of the recovery ship that's

5554
04:07:06,469 --> 04:07:04,620
in the Pacific Ocean and off off the

5555
04:07:08,870 --> 04:07:06,479
coast of Hawaii you can see in the

5556
04:07:10,490 --> 04:07:08,880
distance there lights bobbing up and

5557
04:07:12,469 --> 04:07:10,500
down in the water that is the heat

5558
04:07:15,110 --> 04:07:12,479
shield that we tested today as part of

5559
04:07:17,689 --> 04:07:15,120
the lofted project and this recovery

5560
04:07:21,110 --> 04:07:17,699
vessel with NASA and Ula team members

5561
04:07:22,849 --> 04:07:21,120
they are so close uh to getting to that

5562
04:07:26,689 --> 04:07:22,859
heat shield and being able to bring it

5563
04:07:28,729 --> 04:07:26,699

aboard onto the ship to further analyze

5564

04:07:31,429 --> 04:07:28,739

it and then after that their their

5565

04:07:33,950 --> 04:07:31,439

mission isn't over then they recover a a

5566

04:07:35,330 --> 04:07:33,960

a a data recorder that was also ejected

5567

04:07:38,330 --> 04:07:35,340

they'll be able to get some more data

5568

04:07:42,349 --> 04:07:38,340

from that and then nine months more of

5569

04:07:43,910 --> 04:07:42,359

just seeing how successful this test was

5570

04:07:45,830 --> 04:07:43,920

and testing this new Innovative

5571

04:07:49,070 --> 04:07:45,840

technology that could really change the

5572

04:07:51,830 --> 04:07:49,080

way we explore our own Universe it

5573

04:07:54,290 --> 04:07:51,840

launched a board an atlas V rocket the

5574

04:07:59,150 --> 04:07:54,300

last Atlas five rocket to launch from

5575

04:08:01,610 --> 04:07:59,160

the West Coast it launched with uh jpss2

5576
04:08:03,189 --> 04:08:01,620
which is the newest polar orbiting

5577
04:08:06,590 --> 04:08:03,199
satellites

5578
04:08:09,290 --> 04:08:06,600
as part of a system that Noah will

5579
04:08:12,170 --> 04:08:09,300
manage we do want to give one update

5580
04:08:14,410 --> 04:08:12,180
though we uh the team is still waiting

5581
04:08:18,590 --> 04:08:14,420
to confirm whether or not

5582
04:08:19,610 --> 04:08:18,600
jpss2's solar array was deployed uh just

5583
04:08:21,349 --> 04:08:19,620
because they haven't been able to

5584
04:08:23,450 --> 04:08:21,359
confirm it doesn't mean there is an

5585
04:08:26,510 --> 04:08:23,460
issue but teams are monitoring that

5586
04:08:28,130 --> 04:08:26,520
closely as more Telemetry data becomes

5587
04:08:31,670 --> 04:08:28,140
available we did just want to mention

5588
04:08:34,010 --> 04:08:31,680

that if you do want to follow along with

5589

04:08:35,929 --> 04:08:34,020

that mission to see whether or not we're

5590

04:08:38,330 --> 04:08:35,939

able to confirm or when we are able to

5591

04:08:40,370 --> 04:08:38,340

confirm solar array deployment you can

5592

04:08:41,990 --> 04:08:40,380

head to these websites we are about to

5593

04:08:43,550 --> 04:08:42,000

pop up on the screen there on the right

5594

04:08:47,389 --> 04:08:43,560

side there that's where you can find out

5595

04:08:49,189 --> 04:08:47,399

more information about jpss2 and over

5596

04:08:51,170 --> 04:08:49,199

there on your right that's where you can

5597

04:08:53,570 --> 04:08:51,180

find out more about lofted

5598

04:08:55,309 --> 04:08:53,580

now if you enjoyed today's launch the

5599

04:08:57,229 --> 04:08:55,319

next one is just around the corner we

5600

04:09:00,889 --> 04:08:57,239

mean days away in the early morning

5601
04:09:03,290 --> 04:09:00,899
hours of November 16th NASA will attempt

5602
04:09:05,450 --> 04:09:03,300
to launch Artemis one our first step

5603
04:09:08,450 --> 04:09:05,460
towards sending astronauts back to the

5604
04:09:10,790 --> 04:09:08,460
Moon in nearly 50 years live coverage

5605
04:09:13,849 --> 04:09:10,800
will begin on NASA TV and it's YouTube

5606
04:09:17,510 --> 04:09:13,859
and streaming channels at 9 30 PM

5607
04:09:20,990 --> 04:09:17,520
Eastern Time on November 15th for a 104

5608
04:09:23,450 --> 04:09:21,000
10 30 p.m so sorry everyone 10 30 p.m

5609
04:09:26,450 --> 04:09:23,460
launch uh launch coverage begins on the

5610
04:09:29,750 --> 04:09:26,460
15th and then we will have hopefully

5611
04:09:31,490 --> 04:09:29,760
launch at 104 a.m on the 16th so again I

5612
04:10:19,410 --> 04:09:31,500
hope you can join us for that and thank

5613
04:10:28,790 --> 04:10:25,990

[Music]

5614

04:10:30,720 --> 04:10:28,800

thank you