



1
00:00:16,810 --> 00:00:38,229

[Music]

2
00:00:41,590 --> 00:00:40,150

welcome back i'm joshua santora coming

3
00:00:42,229 --> 00:00:41,600

to you from near the kennedy space

4
00:00:44,150 --> 00:00:42,239

center

5
00:00:46,069 --> 00:00:44,160

we took a couple months off obviously we

6
00:00:46,790 --> 00:00:46,079

had the crew one mission a phenomenal

7
00:00:48,950 --> 00:00:46,800

flight

8
00:00:50,790 --> 00:00:48,960

um the first crew of seven on aboard

9
00:00:52,869 --> 00:00:50,800

expedition onboard space station

10
00:00:54,389 --> 00:00:52,879

we also had the sentinel six michael

11
00:00:55,910 --> 00:00:54,399

freilick flight from the west coast at

12
00:00:58,389 --> 00:00:55,920

vandenberg air force base

13
00:00:59,830 --> 00:00:58,399

beautiful launch and landing and then we

14

00:01:02,310 --> 00:00:59,840

had just recently

15

00:01:03,750 --> 00:01:02,320

the spacex commercial resupply services

16

00:01:05,910 --> 00:01:03,760

mission 21

17

00:01:07,830 --> 00:01:05,920

take off to supply with supplies and

18

00:01:08,789 --> 00:01:07,840

resources for the the crew aboard space

19

00:01:10,230 --> 00:01:08,799

station

20

00:01:12,070 --> 00:01:10,240

we're getting back into things now

21

00:01:15,030 --> 00:01:12,080

talking about what does it take to get

22

00:01:16,950 --> 00:01:15,040

humans into deep space and specifically

23

00:01:18,070 --> 00:01:16,960

how the world's premier spaceport is

24

00:01:19,510 --> 00:01:18,080

playing a part

25

00:01:20,950 --> 00:01:19,520

today we're going to focus on the way

26

00:01:22,950 --> 00:01:20,960

that the kennedy space center is

27

00:01:25,190 --> 00:01:22,960

probably the most directly involved

28

00:01:26,149 --> 00:01:25,200

in humanities exploration and that's by

29

00:01:27,749 --> 00:01:26,159

way of launching

30

00:01:29,510 --> 00:01:27,759

we'll be launching the space launch

31

00:01:31,670 --> 00:01:29,520

system rocket or sls

32

00:01:33,670 --> 00:01:31,680

along with the orion crew capsule on top

33

00:01:35,990 --> 00:01:33,680

and this is coming by way of the

34

00:01:37,190 --> 00:01:36,000

exploration ground systems program

35

00:01:38,390 --> 00:01:37,200

you may not have heard of them but

36

00:01:40,230 --> 00:01:38,400

they're responsible for all of the

37

00:01:41,749 --> 00:01:40,240

infrastructure to actually launch

38

00:01:43,830 --> 00:01:41,759

they major in testing launching and

39

00:01:45,910 --> 00:01:43,840

recovery for the next generation in

40

00:01:46,950 --> 00:01:45,920

evolution of humanity's deep space

41

00:01:49,830 --> 00:01:46,960

exploration

42

00:01:51,749 --> 00:01:49,840

so let's get started jumping right in

43

00:01:52,149 --> 00:01:51,759

we're now joined by yves lamothe who is

44

00:01:54,870 --> 00:01:52,159

the

45

00:01:56,389 --> 00:01:54,880

exploration ground systems com systems

46

00:01:58,310 --> 00:01:56,399

project manager

47

00:02:00,469 --> 00:01:58,320

uh thanks for joining me eves it's

48

00:02:02,469 --> 00:02:00,479

always a pleasure when our paths cross

49

00:02:03,510 --> 00:02:02,479

oh you are so welcome josh happy to be

50

00:02:05,030 --> 00:02:03,520

here

51
00:02:07,830 --> 00:02:05,040
uh can you tell me a little bit about

52
00:02:10,229 --> 00:02:07,840
your role for artemis

53
00:02:11,110 --> 00:02:10,239
right so um as the comp systems project

54
00:02:13,510 --> 00:02:11,120
manager

55
00:02:15,190 --> 00:02:13,520
uh i'm responsible for providing you

56
00:02:18,229 --> 00:02:15,200
know comp services which includes

57
00:02:20,710 --> 00:02:18,239
voice imagery and transmission systems

58
00:02:22,070 --> 00:02:20,720
uh to support launch you know we work

59
00:02:23,670 --> 00:02:22,080
with uh

60
00:02:25,350 --> 00:02:23,680
the marshall space flight center in the

61
00:02:27,750 --> 00:02:25,360
johnson space center

62
00:02:29,350 --> 00:02:27,760
and uh and they may need data they may

63
00:02:32,150 --> 00:02:29,360

need imagery they may need um

64

00:02:34,229 --> 00:02:32,160

access to some of those um items and so

65

00:02:35,190 --> 00:02:34,239

we the transmission piece of it is what

66

00:02:37,509 --> 00:02:35,200

provides

67

00:02:38,790 --> 00:02:37,519

the ability to get them that data that

68

00:02:41,430 --> 00:02:38,800

they need

69

00:02:42,150 --> 00:02:41,440

yeah as we prepare for the artemis one

70

00:02:43,910 --> 00:02:42,160

flight

71

00:02:45,990 --> 00:02:43,920

artemis two and three are right on its

72

00:02:47,430 --> 00:02:46,000

heels and we don't have time to just

73

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

focus on one of the time we're working

74

00:02:51,430 --> 00:02:49,360

all of those really together

75

00:02:54,309 --> 00:02:51,440

so is this really a rinse wash and

76

00:02:57,350 --> 00:02:54,319

repeat process for future missions

77

00:02:59,190 --> 00:02:57,360

so you know in essence the answer is yes

78

00:03:01,030 --> 00:02:59,200

right because when you think about the

79

00:03:01,750 --> 00:03:01,040

shuttle program while the missions were

80

00:03:03,589 --> 00:03:01,760

different

81

00:03:05,990 --> 00:03:03,599

the process was always pretty much the

82

00:03:06,710 --> 00:03:06,000

same we will learn a lot from artemis

83

00:03:09,750 --> 00:03:06,720

one

84

00:03:10,949 --> 00:03:09,760

and uh the things that we learn we will

85

00:03:13,030 --> 00:03:10,959

apply them to the

86

00:03:14,949 --> 00:03:13,040

the follow-on missions and it will give

87

00:03:16,149 --> 00:03:14,959

us an opportunity to refine the process

88

00:03:17,910 --> 00:03:16,159

the processing

89

00:03:19,750 --> 00:03:17,920

and launch the vehicle much more

90

00:03:22,309 --> 00:03:19,760

efficiently

91

00:03:23,190 --> 00:03:22,319

eves tell me why the goal of humans back

92

00:03:26,869 --> 00:03:23,200

on the moon

93

00:03:28,390 --> 00:03:26,879

is so important right now you know um

94

00:03:30,229 --> 00:03:28,400

that that's a really really good

95

00:03:30,869 --> 00:03:30,239

question why do we do the things that we

96

00:03:33,350 --> 00:03:30,879

do

97

00:03:35,030 --> 00:03:33,360

we have this amazing resource um on the

98

00:03:37,190 --> 00:03:35,040

moon with so many knowns

99

00:03:38,789 --> 00:03:37,200

and unknowns and it would almost be a

100

00:03:41,190 --> 00:03:38,799

crime if we didn't

101
00:03:42,630 --> 00:03:41,200
explore what what the possibilities are

102
00:03:45,589 --> 00:03:42,640
on the moon

103
00:03:47,270 --> 00:03:45,599
now the moon is also a perfect place to

104
00:03:49,509 --> 00:03:47,280
establish a base

105
00:03:51,990 --> 00:03:49,519
right or a point of departure to get to

106
00:03:54,470 --> 00:03:52,000
mars so if we can build the moon base

107
00:03:55,190 --> 00:03:54,480
figure out how to live long term on in

108
00:03:57,030 --> 00:03:55,200
space

109
00:03:58,630 --> 00:03:57,040
then that makes it easier for us to head

110
00:03:59,509 --> 00:03:58,640
to mars and figure out how to do the

111
00:04:02,550 --> 00:03:59,519
same thing

112
00:04:04,630 --> 00:04:02,560
so the moon is sort of like practice

113
00:04:05,830 --> 00:04:04,640

for us to figure out how to keep how

114

00:04:08,550 --> 00:04:05,840

to sustain human

115

00:04:10,070 --> 00:04:08,560

presence in in the space environment and

116

00:04:11,429 --> 00:04:10,080

the things that we learn from there we

117

00:04:14,470 --> 00:04:11,439

can apply them to

118

00:04:15,509 --> 00:04:14,480

our travels to mars if you could tell

119

00:04:17,270 --> 00:04:15,519

the people of earth

120

00:04:18,710 --> 00:04:17,280

uh one thing about artemis one big

121

00:04:22,870 --> 00:04:18,720

takeaway for them what would that be

122

00:04:24,310 --> 00:04:22,880

for you our future depends on it

123

00:04:26,310 --> 00:04:24,320

that is that is the one thing that i

124

00:04:29,749 --> 00:04:26,320

would leave everyone with is

125

00:04:30,070 --> 00:04:29,759

it's important it's uh valuable um earth

126
00:04:31,909 --> 00:04:30,080
is

127
00:04:34,150 --> 00:04:31,919
precious and it takes it takes a lot to

128
00:04:37,749 --> 00:04:34,160
take care of our precious earth

129
00:04:41,430 --> 00:04:37,759
and we as humans right

130
00:04:43,990 --> 00:04:41,440
we have to explore and figure out how to

131
00:04:45,270 --> 00:04:44,000
find resources to help us sustain or

132
00:04:48,550 --> 00:04:45,280
prolong i should say

133
00:04:50,629 --> 00:04:48,560
our life here on earth

134
00:04:51,590 --> 00:04:50,639
well said yeah uh obviously

135
00:04:53,590 --> 00:04:51,600
communication is

136
00:04:55,590 --> 00:04:53,600
critical to the success of every program

137
00:04:56,070 --> 00:04:55,600
and mission so good luck to you and your

138
00:04:57,749 --> 00:04:56,080

team

139

00:04:59,670 --> 00:04:57,759

uh excited for for what you have to do

140

00:05:01,270 --> 00:04:59,680

in the future for us

141

00:05:03,590 --> 00:05:01,280

absolutely josh always a pleasure to be

142

00:05:06,629 --> 00:05:03,600

here with you guys yeah until next time

143

00:05:07,830 --> 00:05:06,639

you got it joining us now is a man with

144

00:05:10,390 --> 00:05:07,840

a couple different titles

145

00:05:12,550 --> 00:05:10,400

and a lot of responsibility in ensuring

146

00:05:15,510 --> 00:05:12,560

we get off the ground successfully

147

00:05:17,510 --> 00:05:15,520

he is both the chief of the test launch

148

00:05:19,749 --> 00:05:17,520

and recovery operations branch

149

00:05:21,510 --> 00:05:19,759

and the assistant launch director jeremy

150

00:05:22,870 --> 00:05:21,520

gregor thank you for making time for us

151
00:05:25,270 --> 00:05:22,880
today

152
00:05:27,110 --> 00:05:25,280
hey absolutely joshua i appreciate you

153
00:05:29,029 --> 00:05:27,120
having me on today

154
00:05:30,469 --> 00:05:29,039
i obviously just mentioned both of your

155
00:05:32,710 --> 00:05:30,479
titles there can you break down those

156
00:05:35,270 --> 00:05:32,720
roles for us

157
00:05:36,950 --> 00:05:35,280
so i'll kind of hit each one of them uh

158
00:05:37,749 --> 00:05:36,960
as the chief of the test launch and

159
00:05:40,469 --> 00:05:37,759
recovery

160
00:05:41,909 --> 00:05:40,479
operations branch uh folks in my office

161
00:05:44,310 --> 00:05:41,919
are responsible for bringing

162
00:05:45,670 --> 00:05:44,320
all of the right representatives subject

163
00:05:50,150 --> 00:05:45,680

matter experts

164

00:05:53,029 --> 00:05:50,160

uh orion folks um sls folks together

165

00:05:54,629 --> 00:05:53,039

the engineering the the safety pieces

166

00:05:56,790 --> 00:05:54,639

all of those things together for these

167

00:05:58,870 --> 00:05:56,800

very large integrated tests and so

168

00:06:01,270 --> 00:05:58,880

it's it's really exciting because we get

169

00:06:04,629 --> 00:06:01,280

to to kind of be on all sides of this

170

00:06:07,270 --> 00:06:04,639

um yeah and then from a launcher

171

00:06:09,029 --> 00:06:07,280

assistant launch director perspective um

172

00:06:11,350 --> 00:06:09,039

that's a function i provide to our

173

00:06:12,390 --> 00:06:11,360

launch directors uh charlie blackwell

174

00:06:14,469 --> 00:06:12,400

thompson

175

00:06:16,469 --> 00:06:14,479

i'm essentially her right hand uh

176
00:06:17,830 --> 00:06:16,479
anything she needs i go off and work and

177
00:06:19,350 --> 00:06:17,840
on launch day i'll be

178
00:06:21,430 --> 00:06:19,360
there sitting next to her helping her

179
00:06:23,189 --> 00:06:21,440
with anything she needs

180
00:06:24,950 --> 00:06:23,199
as the team is preparing for the maiden

181
00:06:27,749 --> 00:06:24,960
flight of sls artemis 1

182
00:06:30,309 --> 00:06:27,759
in roughly a year from now a year can

183
00:06:33,749 --> 00:06:30,319
seem like so long and no time at all

184
00:06:35,990 --> 00:06:33,759
what's left to do absolutely so

185
00:06:37,749 --> 00:06:36,000
there's there are quite a few things

186
00:06:39,670 --> 00:06:37,759
that we have to do so once the core

187
00:06:40,390 --> 00:06:39,680
stage arrives that'll be that final

188
00:06:41,990 --> 00:06:40,400

piece

189

00:06:43,670 --> 00:06:42,000

and we will have already like i said

190

00:06:46,710 --> 00:06:43,680

started stacking the

191

00:06:48,790 --> 00:06:46,720

boosters we've got work that

192

00:06:50,710 --> 00:06:48,800

is going to come with the core stage

193

00:06:51,909 --> 00:06:50,720

where we've got to actually prepare it

194

00:06:53,990 --> 00:06:51,919

and get it ready

195

00:06:56,550 --> 00:06:54,000

so that work will happen in the transfer

196

00:06:58,550 --> 00:06:56,560

aisle of the vehicle assembly building

197

00:06:59,990 --> 00:06:58,560

then once we get that stacked there's

198

00:07:01,749 --> 00:07:00,000

several different pieces that get

199

00:07:02,150 --> 00:07:01,759

stacked on top of the core stage till

200

00:07:05,029 --> 00:07:02,160

we're

201
00:07:05,990 --> 00:07:05,039
tied to up to a final in total uh

202
00:07:09,350 --> 00:07:06,000
artemis

203
00:07:11,110 --> 00:07:09,360
configuration once that's all complete

204
00:07:12,629 --> 00:07:11,120
then you have to test

205
00:07:15,350 --> 00:07:12,639
we want to make sure that when we roll

206
00:07:18,150 --> 00:07:15,360
out to the launch pad for launch that

207
00:07:20,629 --> 00:07:18,160
every system has been checked under that

208
00:07:22,950 --> 00:07:20,639
we're within all of our requirement sets

209
00:07:24,629 --> 00:07:22,960
and that we're ready to fly obviously

210
00:07:26,710 --> 00:07:24,639
the role that the launch team plays

211
00:07:27,990 --> 00:07:26,720
in humanities deep space exploration is

212
00:07:28,950 --> 00:07:28,000
to literally get this thing off the

213
00:07:31,029 --> 00:07:28,960

ground

214

00:07:32,790 --> 00:07:31,039

as you look beyond artemis one what are

215

00:07:33,510 --> 00:07:32,800

the things the team is working today to

216

00:07:36,390 --> 00:07:33,520

prepare

217

00:07:37,350 --> 00:07:36,400

uh for the future of our flights with

218

00:07:39,189 --> 00:07:37,360

artemis one

219

00:07:41,110 --> 00:07:39,199

there is not a crew right so certain

220

00:07:42,150 --> 00:07:41,120

aspects of what we would typically be

221

00:07:44,790 --> 00:07:42,160

worried about

222

00:07:45,510 --> 00:07:44,800

um we don't have to focus on for artemis

223

00:07:47,909 --> 00:07:45,520

one

224

00:07:48,790 --> 00:07:47,919

but artemis ii comes very quickly after

225

00:07:52,550 --> 00:07:48,800

artemis one

226

00:07:55,189 --> 00:07:52,560

preparations

227

00:07:55,909 --> 00:07:55,199

we are working on many of the crew

228

00:07:57,830 --> 00:07:55,919

related

229

00:07:59,430 --> 00:07:57,840

activities and capabilities that we'll

230

00:08:01,909 --> 00:07:59,440

need so uh

231

00:08:04,390 --> 00:08:01,919

an example for launch our emergency

232

00:08:06,230 --> 00:08:04,400

egress system which is a capability

233

00:08:07,589 --> 00:08:06,240

should there be an emergency during the

234

00:08:11,189 --> 00:08:07,599

launch countdown

235

00:08:14,869 --> 00:08:11,199

is what the flight crew would utilize to

236

00:08:17,350 --> 00:08:14,879

basically escape from the

237

00:08:18,390 --> 00:08:17,360

vehicle onto the mobile launcher and

238

00:08:21,029 --> 00:08:18,400

then down to

239

00:08:22,390 --> 00:08:21,039

to the perimeter of the launch pad and

240

00:08:24,629 --> 00:08:22,400

then to be able to escape

241

00:08:26,790 --> 00:08:24,639

out from the launch pad um on the

242

00:08:28,790 --> 00:08:26,800

recovery side it's the same thing

243

00:08:30,390 --> 00:08:28,800

we're partnering with the navy and all

244

00:08:30,950 --> 00:08:30,400

of the different capabilities that we

245

00:08:34,070 --> 00:08:30,960

need

246

00:08:37,269 --> 00:08:34,080

to be able to recover the crew most

247

00:08:39,829 --> 00:08:37,279

uh splashdown get them safely onto

248

00:08:41,350 --> 00:08:39,839

our recovery ship so we're working

249

00:08:44,710 --> 00:08:41,360

directly with the flight crew

250

00:08:46,389 --> 00:08:44,720

directly with all of the navy personnel

251

00:08:50,150 --> 00:08:46,399

that are you know immediately

252

00:08:51,670 --> 00:08:50,160

uh interfacing with uh the vehicle

253

00:08:54,550 --> 00:08:51,680

and making sure that we've got plans and

254

00:08:57,269 --> 00:08:54,560

capabilities available for those

255

00:08:57,990 --> 00:08:57,279

crew-related capabilities moving forward

256

00:08:59,670 --> 00:08:58,000

and and

257

00:09:01,030 --> 00:08:59,680

those are just a couple of little

258

00:09:03,430 --> 00:09:01,040

snapshots but

259

00:09:05,110 --> 00:09:03,440

we are very very focused on that in

260

00:09:06,710 --> 00:09:05,120

parallel with also getting ready for

261

00:09:08,790 --> 00:09:06,720

artemis one

262

00:09:10,070 --> 00:09:08,800

no doubt the tip of the iceberg when it

263

00:09:10,790 --> 00:09:10,080

comes to trying to work things in

264

00:09:12,710 --> 00:09:10,800

parallel

265

00:09:14,230 --> 00:09:12,720

doing so many things at once um

266

00:09:15,190 --> 00:09:14,240

incredibly excited to see this first

267

00:09:17,350 --> 00:09:15,200

mission fly

268

00:09:18,630 --> 00:09:17,360

and subsequent ones as well so good luck

269

00:09:19,829 --> 00:09:18,640

to you in the entire team i know you

270

00:09:21,670 --> 00:09:19,839

have a ton of work to do and we're

271

00:09:23,430 --> 00:09:21,680

excited for your success

272

00:09:25,269 --> 00:09:23,440

thank you so much appreciate the time

273

00:09:27,030 --> 00:09:25,279

and thanks for having me

274

00:09:28,870 --> 00:09:27,040

you certainly cannot get humans to deep

275

00:09:30,710 --> 00:09:28,880

space without a ride

276

00:09:32,310 --> 00:09:30,720

and we are literally in the process of

277

00:09:34,070 --> 00:09:32,320

seeing that ride come together with

278

00:09:35,990 --> 00:09:34,080

stacking already underway

279

00:09:37,910 --> 00:09:36,000

uh join us next time for the last

280

00:09:40,790 --> 00:09:37,920

episode in this particular series

281

00:09:42,150 --> 00:09:40,800

as we look at how to survive once you

282

00:09:43,430 --> 00:09:42,160

get to deep space

283

00:09:45,190 --> 00:09:43,440

the moon or mars can seem like a

284

00:09:46,870 --> 00:09:45,200

desolate place but there's a lot of

285

00:09:48,550 --> 00:09:46,880

resources there available to us

286

00:09:50,310 --> 00:09:48,560

and we'll cover what that means and how

287

00:09:51,990 --> 00:09:50,320

we're making good use of it

288

00:09:53,910 --> 00:09:52,000

that's gonna do it for this episode and

289

00:10:05,590 --> 00:09:53,920

remember that even the sky