
PAO

1
00:00:03,830 --> 00:00:02,270
today we have here inside joining us

2
00:00:05,869 --> 00:00:03,840
inside the International Space Station

3
00:00:08,600 --> 00:00:05,879
flight control room we have NASA's

4
00:00:10,790 --> 00:00:08,610
project executive SpaceX for SpaceX at

5
00:00:13,459 --> 00:00:10,800
micro tkachuk Mike thank you for joining

6
00:00:15,200 --> 00:00:13,469
us and welcome thank you so mike is here

7
00:00:18,050 --> 00:00:15,210
actually to give us an update we've been

8
00:00:21,050 --> 00:00:18,060
talking about some of the removal and

9
00:00:22,849 --> 00:00:21,060
replacement of the failed GPS on board

10
00:00:24,890 --> 00:00:22,859
the International Space Station and he's

11
00:00:28,130 --> 00:00:24,900
here to give us an update on SpaceX

12
00:00:29,779 --> 00:00:28,140
launch and also on that GPS so first of

13
00:00:32,030 --> 00:00:29,789

all can you give us some vote actually

14
00:00:34,220 --> 00:00:32,040
just tell me a little about yourself and

15
00:00:36,200 --> 00:00:34,230
how you came about how he came here to

16
00:00:39,500 --> 00:00:36,210
NASA real quick before we get into the

17
00:00:42,560 --> 00:00:39,510
update okay I actually started out at

18
00:00:44,600 --> 00:00:42,570
NASA and Ames Research thinner and then

19
00:00:47,330 --> 00:00:44,610
I transferred here to JSC about the time

20
00:00:50,750 --> 00:00:47,340
that Space Station freedom was being

21
00:00:53,510 --> 00:00:50,760
really repositioned and renamed to Space

22
00:00:56,290 --> 00:00:53,520
Station alpha and been working in the

23
00:00:58,459 --> 00:00:56,300
space station office for over 10 years

24
00:01:00,709 --> 00:00:58,469
did a little time in the constellation

25
00:01:04,609 --> 00:01:00,719
program and test and verification and

26
00:01:08,300 --> 00:01:04,619
then I've working in the cots office as

27
00:01:10,280 --> 00:01:08,310
the project executive for SpaceX for at

28
00:01:13,570 --> 00:01:10,290
least five years now since chief has

29
00:01:16,700 --> 00:01:13,580
ended 2006 okay for a while now so um

30
00:01:18,380 --> 00:01:16,710
tell me real quick just what what is the

31
00:01:20,600 --> 00:01:18,390
update what is what is launched looking

32
00:01:22,640 --> 00:01:20,610
like right now I think launch is looking

33
00:01:25,730 --> 00:01:22,650
good for the 19th it's early morning on

34
00:01:30,429 --> 00:01:25,740
the 19th k time for 55 in the morning

35
00:01:32,510 --> 00:01:30,439
well 55 so 355 central time correct and

36
00:01:34,399 --> 00:01:32,520
so everything looks good for that now

37
00:01:36,469 --> 00:01:34,409
let's go ahead and talk about that GPS

38
00:01:37,789 --> 00:01:36,479

because I know that the attitude control

39
00:01:39,950 --> 00:01:37,799
system aboard the International Space

40
00:01:41,810 --> 00:01:39,960
Station there are two and it is

41
00:01:43,609 --> 00:01:41,820
necessary that both of them are working

42
00:01:47,539 --> 00:01:43,619
in order to do the round of you and

43
00:01:48,950 --> 00:01:47,549
docking with the and the dragon so if

44
00:01:52,490 --> 00:01:48,960
you can just tell me a little about that

45
00:01:54,440 --> 00:01:52,500
yeah we had a launch constraint that we

46
00:01:57,050 --> 00:01:54,450
want both systems up in operating for

47
00:01:58,940 --> 00:01:57,060
redundancy so before a lot we give the

48
00:02:00,320 --> 00:01:58,950
go to launch we wanted both systems up

49
00:02:03,630 --> 00:02:00,330
and running

50
00:02:06,030 --> 00:02:03,640
the the whole rendezvous process uses

51
00:02:09,419 --> 00:02:06,040
GPS as part of the sensor suite for the

52
00:02:12,390 --> 00:02:09,429
rendezvous and as you start getting

53
00:02:15,240 --> 00:02:12,400
closer to station you want to do what we

54
00:02:17,310 --> 00:02:15,250
call relative GPS so we're sending data

55
00:02:20,330 --> 00:02:17,320
from the space station on its position

56
00:02:22,380 --> 00:02:20,340
from those GPS sensors through

57
00:02:24,990 --> 00:02:22,390
communication system that SpaceX

58
00:02:26,820 --> 00:02:25,000
developed called the cuckoo it's a UHF

59
00:02:29,400 --> 00:02:26,830
communication system to the Dragon

60
00:02:32,550 --> 00:02:29,410
spacecraft and then it uses that data

61
00:02:34,199 --> 00:02:32,560
plus the GPS data on board the dragon to

62
00:02:37,560 --> 00:02:34,209
look at the relative position of the two

63
00:02:39,360 --> 00:02:37,570

vehicles so that the two vehicles don't

64
00:02:42,210 --> 00:02:39,370
get too close to to each other and we

65
00:02:45,540 --> 00:02:42,220
know exactly where they are okay great

66
00:02:47,190 --> 00:02:45,550
and anything new that's we'll just on

67
00:02:49,890 --> 00:02:47,200
target for launch everything went scared

68
00:02:51,510 --> 00:02:49,900
nothing new yeah i think we closed out a

69
00:02:53,220 --> 00:02:51,520
lot of work over the last couple of

70
00:02:56,580 --> 00:02:53,230
weeks there was a lot of software that's

71
00:02:58,220 --> 00:02:56,590
been rechecked and validated by the

72
00:03:00,840 --> 00:02:58,230
space station program they did a

73
00:03:04,020 --> 00:03:00,850
end-to-end test of the data system as

74
00:03:05,970 --> 00:03:04,030
well as another stage test checking all

75
00:03:08,960 --> 00:03:05,980
the software functionality as it relates

76
00:03:10,890 --> 00:03:08,970
to space station looked at a lot of the

77
00:03:13,199 --> 00:03:10,900
changes that have been done on the

78
00:03:17,100 --> 00:03:13,209
software and got comfortable that all

79
00:03:18,420 --> 00:03:17,110
those changes were acceptable the

80
00:03:20,280 --> 00:03:18,430
hardware has been in pretty good shape

81
00:03:23,520 --> 00:03:20,290
for the last few weeks we did a static

82
00:03:27,630 --> 00:03:23,530
fire about two weeks ago out at the cape

83
00:03:31,140 --> 00:03:27,640
and the first stage engines performed

84
00:03:32,670 --> 00:03:31,150
fine all that data looks good and the

85
00:03:35,190 --> 00:03:32,680
Dragon spacecraft has been closed out

86
00:03:37,320 --> 00:03:35,200
for flight for quite a while okay so I

87
00:03:39,810 --> 00:03:37,330
think things are looking good good to go

88
00:03:42,360 --> 00:03:39,820

and so real quick also tell me about

89
00:03:43,590 --> 00:03:42,370
what I know that at times when we have

90
00:03:44,940 --> 00:03:43,600
launched we have this whole you know the

91
00:03:46,560 --> 00:03:44,950
weather and that's what I think if

92
00:03:48,390 --> 00:03:46,570
something would have happened and

93
00:03:51,090 --> 00:03:48,400
whether does not cooperate with us is

94
00:03:53,430 --> 00:03:51,100
there a second chance opportunity to

95
00:03:55,229 --> 00:03:53,440
yeah there's another planned opportunity

96
00:03:56,789 --> 00:03:55,239
on the twenty-second it gets a little

97
00:03:59,280 --> 00:03:56,799
bit earlier in the morning due to the

98
00:04:01,170 --> 00:03:59,290
phasing trying to catch up the space

99
00:04:03,539 --> 00:04:01,180
station and then after that there's

100
00:04:06,930 --> 00:04:03,549
about four more opportunities before we

101
00:04:08,640 --> 00:04:06,940
get into a high beta period where it's

102
00:04:10,740 --> 00:04:08,650
just not going to be good to fly up to

103
00:04:12,240 --> 00:04:10,750
the space station for rendezvous okay

104
00:04:15,630 --> 00:04:12,250
and in others for other opportunities

105
00:04:18,270 --> 00:04:15,640
are they consecutive each day so on the

106
00:04:19,800 --> 00:04:18,280
22nd and then after that or are they set

107
00:04:22,830 --> 00:04:19,810
dates yeah they're set days they're

108
00:04:25,230 --> 00:04:22,840
staggered a little bit and it it depends

109
00:04:28,860 --> 00:04:25,240
on the orbital mechanics I think it's

110
00:04:29,880 --> 00:04:28,870
the 23rd 24th I'm not gonna hold you to

111
00:04:31,500 --> 00:04:29,890
it but it was didn't know if it was

112
00:04:33,240 --> 00:04:31,510
consecutive leave right after the 20

113
00:04:35,580 --> 00:04:33,250

seconds and then we'll need to work with

114
00:04:39,330 --> 00:04:35,590
the range the air force to make sure

115
00:04:42,630 --> 00:04:39,340
that those days are available and just

116
00:04:45,210 --> 00:04:42,640
kind of plan it out so now how involved

117
00:04:47,850 --> 00:04:45,220
has NASA been with the development in

118
00:04:50,460 --> 00:04:47,860
there and there's the pre flight test

119
00:04:51,810 --> 00:04:50,470
and that sort of thing with SpaceX

120
00:04:53,340 --> 00:04:51,820
somewhat i'm assuming pretty much

121
00:04:54,810 --> 00:04:53,350
involved as you are talking about but

122
00:04:56,580 --> 00:04:54,820
you know what was what was your

123
00:04:58,680 --> 00:04:56,590
experience yeah as part of the Space Act

124
00:05:00,570 --> 00:04:58,690
agreement we've been looking at

125
00:05:03,240 --> 00:05:00,580
milestone since the very beginning of

126
00:05:05,400 --> 00:05:03,250
the development program we started out

127
00:05:07,350 --> 00:05:05,410
with an initial kickoff meeting and then

128
00:05:09,930 --> 00:05:07,360
went into what we call a preliminary

129
00:05:11,700 --> 00:05:09,940
design review we had a number of NASA

130
00:05:14,070 --> 00:05:11,710
engineers looking at the preliminary

131
00:05:16,590 --> 00:05:14,080
concepts of the design just the high

132
00:05:19,700 --> 00:05:16,600
level and then we proceeded into

133
00:05:22,800 --> 00:05:19,710
critical design reviews as well as

134
00:05:25,620 --> 00:05:22,810
detailed reviews of various testing

135
00:05:27,240 --> 00:05:25,630
events that had gone on as they were

136
00:05:29,400 --> 00:05:27,250
building up they started testing the

137
00:05:32,100 --> 00:05:29,410
Draco engines on that on the Dragon

138
00:05:34,380 --> 00:05:32,110

spacecraft up in McGregor they

139
00:05:36,570 --> 00:05:34,390
incrementally did testing of the first

140
00:05:39,719 --> 00:05:36,580
stage they actually lit the entire first

141
00:05:42,990 --> 00:05:39,729
stage and ran a full mission duration at

142
00:05:45,690 --> 00:05:43,000
their test facility in McGregor we did a

143
00:05:47,400 --> 00:05:45,700
large system thermal vacuum test where

144
00:05:49,560 --> 00:05:47,410
the whole spacecraft was in a thermal

145
00:05:52,469 --> 00:05:49,570
back chamber checking out the extremes

146
00:05:55,010 --> 00:05:52,479
of temperature and making sure all the

147
00:06:00,120 --> 00:05:55,020
systems function during those extremes

148
00:06:02,670 --> 00:06:00,130
EMI testing we did what we call a dr our

149
00:06:05,100 --> 00:06:02,680
demo readiness review which looked at

150
00:06:06,930 --> 00:06:05,110
all the qual and acceptance reports and

151
00:06:09,150 --> 00:06:06,940
we did a top-level look at all those and

152
00:06:12,240 --> 00:06:09,160
made sure that they had met their

153
00:06:16,200 --> 00:06:12,250
criteria for launch vibration shock

154
00:06:17,760 --> 00:06:16,210
environments temperature you know the

155
00:06:20,550 --> 00:06:17,770
usual kind of things that we do on a

156
00:06:22,290 --> 00:06:20,560
spacecraft so we've been involved I

157
00:06:24,330 --> 00:06:22,300
wouldn't say that it's necessarily as

158
00:06:26,460 --> 00:06:24,340
deeply as involved as we

159
00:06:28,200 --> 00:06:26,470
done on some other projects but it it's

160
00:06:29,790 --> 00:06:28,210
been a good review you know they've gone

161
00:06:32,280 --> 00:06:29,800
through all the safety review process

162
00:06:34,650 --> 00:06:32,290
with the space station so it's been a

163
00:06:37,379 --> 00:06:34,660

very thorough lots of collaboration I

164
00:06:42,210 --> 00:06:37,389
would've worked between SpaceX and NASA

165
00:06:44,820 --> 00:06:42,220
as well now with SpaceX the it takes a

166
00:06:50,070 --> 00:06:44,830
lot to build a spacecraft it seems but

167
00:06:52,500 --> 00:06:50,080
so if you can just go through the just

168
00:06:54,540 --> 00:06:52,510
the why you know why are we looking to

169
00:06:58,890 --> 00:06:54,550
commercial industry to help us you know

170
00:07:01,700 --> 00:06:58,900
develop spacecraft well there's been a

171
00:07:04,350 --> 00:07:01,710
push I guess that ass has been doing

172
00:07:07,920 --> 00:07:04,360
flights to low-earth orbit for a long

173
00:07:09,990 --> 00:07:07,930
time now 40 50 years since Apollo and

174
00:07:12,030 --> 00:07:10,000
we've kind of got the technology down

175
00:07:16,020 --> 00:07:12,040
and it seemed like it was mature enough

176
00:07:18,000 --> 00:07:16,030
to pass on to us industry and the idea

177
00:07:21,600 --> 00:07:18,010
was that if we could get commercial

178
00:07:23,850 --> 00:07:21,610
industry to start doing it it would turn

179
00:07:26,610 --> 00:07:23,860
out to be cheaper in the long run and it

180
00:07:28,590 --> 00:07:26,620
would give more of the NASA budget the

181
00:07:30,450 --> 00:07:28,600
opportunity to be looking at building

182
00:07:33,120 --> 00:07:30,460
spacecraft where we can go deeper and

183
00:07:36,810 --> 00:07:33,130
further into space than we ever have

184
00:07:40,740 --> 00:07:36,820
before go on past the moon out to l2 out

185
00:07:43,290 --> 00:07:40,750
to you know asteroids and potentially in

186
00:07:44,969 --> 00:07:43,300
the long run get to Mars so it gives us

187
00:07:48,510 --> 00:07:44,979
an opportunity to use our budget more

188
00:07:50,339 --> 00:07:48,520

efficiently I think is the real benefit

189
00:07:52,560 --> 00:07:50,349
of going to come on over and so while

190
00:07:55,170 --> 00:07:52,570
we're not just after the the cheaper

191
00:07:58,440 --> 00:07:55,180
ride we also are looking seeking for

192
00:08:00,500 --> 00:07:58,450
reliability is that correct oh yeah we

193
00:08:02,640 --> 00:08:00,510
definitely want the systems to work and

194
00:08:04,170 --> 00:08:02,650
you know that's one thing that when

195
00:08:06,330 --> 00:08:04,180
you're cheaper you sometimes thinking

196
00:08:08,580 --> 00:08:06,340
that it's going to be less reliable I

197
00:08:10,379 --> 00:08:08,590
know for a fact that SpaceX is very

198
00:08:13,050 --> 00:08:10,389
focused on trying to make sure that

199
00:08:15,409 --> 00:08:13,060
their systems work they know that as a

200
00:08:17,159 --> 00:08:15,419
company they have to make their products

201
00:08:19,890 --> 00:08:17,169
successful or they're not going to get

202
00:08:21,600 --> 00:08:19,900
new business so they're very focused on

203
00:08:23,520 --> 00:08:21,610
making sure that their systems will work

204
00:08:25,710 --> 00:08:23,530
and that they have high reliability

205
00:08:27,120 --> 00:08:25,720
built in for the systems they may go

206
00:08:30,210 --> 00:08:27,130
about doing it a little bit different

207
00:08:32,219 --> 00:08:30,220
than we have in the past but it's always

208
00:08:34,180 --> 00:08:32,229
in the back of their mind that they have

209
00:08:36,790 --> 00:08:34,190
to make these vehicles work

210
00:08:40,450 --> 00:08:36,800
or they're not going to have a long-term

211
00:08:44,740 --> 00:08:40,460
viable company so in some cases it's

212
00:08:47,380 --> 00:08:44,750
even more important to them that it's

213
00:08:50,680 --> 00:08:47,390

all successful than than other companies

214
00:08:53,170 --> 00:08:50,690
on a typical bar base contract its own

215
00:08:57,160 --> 00:08:53,180
company's livelihood to make sure that

216
00:08:58,720 --> 00:08:57,170
it is reliable as well now so um do you

217
00:09:00,700 --> 00:08:58,730
know can you tell me the contents of

218
00:09:03,550 --> 00:09:00,710
SpaceX I mean what is first of all what

219
00:09:04,960 --> 00:09:03,560
is the cargo capacity and then what is

220
00:09:07,360 --> 00:09:04,970
it going to be taking up to the

221
00:09:10,780 --> 00:09:07,370
International Space Station okay well

222
00:09:13,030 --> 00:09:10,790
not on this flight the total car

223
00:09:15,670 --> 00:09:13,040
capacity is on the order of 3,000

224
00:09:17,950 --> 00:09:15,680
kilograms on this flight we're taking up

225
00:09:21,970 --> 00:09:17,960
about a little over 500 kilograms up and

226
00:09:27,150 --> 00:09:21,980
about 600 kilograms down in general its

227
00:09:29,740 --> 00:09:27,160
lower value cargo food crew supplies

228
00:09:33,160 --> 00:09:29,750
there's a small number of science

229
00:09:36,160 --> 00:09:33,170
experiments that are going up in general

230
00:09:38,320 --> 00:09:36,170
it's that this is still a test flight we

231
00:09:40,900 --> 00:09:38,330
initially had three test flights in the

232
00:09:43,960 --> 00:09:40,910
development program undercuts the first

233
00:09:45,640 --> 00:09:43,970
one we flew December of 09 very

234
00:09:48,850 --> 00:09:45,650
successful flight launched out of Cape

235
00:09:51,610 --> 00:09:48,860
Canaveral got the Dragon spacecraft into

236
00:09:53,680 --> 00:09:51,620
orbit circle the earth two times proved

237
00:09:55,750 --> 00:09:53,690
that the basic thrusters and guidance

238
00:09:58,900 --> 00:09:55,760

control system would work pointed at

239
00:10:00,610 --> 00:09:58,910
tedious and then re-entered and proved

240
00:10:02,230 --> 00:10:00,620
at the heat shield and the whole reentry

241
00:10:04,390 --> 00:10:02,240
system worked well the parachutes

242
00:10:06,160 --> 00:10:04,400
deployed well and it was a very gentle

243
00:10:09,220 --> 00:10:06,170
landing in the Pacific about three hours

244
00:10:11,320 --> 00:10:09,230
later then we were going to gradually

245
00:10:12,460 --> 00:10:11,330
increase the complexity admissions the

246
00:10:16,510 --> 00:10:12,470
second mission was supposed to do a

247
00:10:19,120 --> 00:10:16,520
flyby of station and check out some of

248
00:10:20,980 --> 00:10:19,130
the aborts and kind of maneuvers that

249
00:10:22,930 --> 00:10:20,990
might be necessary on a mission going to

250
00:10:24,850 --> 00:10:22,940
station as well as closing the

251
00:10:26,829 --> 00:10:24,860
communications link between the space

252
00:10:28,870 --> 00:10:26,839
station and the Dragon spacecraft and

253
00:10:30,970 --> 00:10:28,880
that was the the primary objective of

254
00:10:32,200 --> 00:10:30,980
that mission then the third mission

255
00:10:33,790 --> 00:10:32,210
would have actually been a full

256
00:10:37,360 --> 00:10:33,800
rendezvous and berthing with the space

257
00:10:39,880 --> 00:10:37,370
station after a lot of review we've

258
00:10:41,890 --> 00:10:39,890
decided that we can let SpaceX make an

259
00:10:43,480 --> 00:10:41,900
attempt at doing both those objectives

260
00:10:46,060 --> 00:10:43,490
on this mission

261
00:10:49,030 --> 00:10:46,070
and that's why we've redesignated as a

262
00:10:50,320 --> 00:10:49,040
c2 plus mission it's the c2 basic

263
00:10:51,880 --> 00:10:50,330

mission and they're going to try and get

264
00:10:58,240 --> 00:10:51,890
some of those bonus objectives of the

265
00:10:59,889 --> 00:10:58,250
third demo so we're trying to give them

266
00:11:02,440 --> 00:10:59,899
the opportunity of meeting all those

267
00:11:04,120 --> 00:11:02,450
milestones and then if they do are

268
00:11:05,740 --> 00:11:04,130
successful they can move on to the

269
00:11:08,139 --> 00:11:05,750
operational phase where we'd be flying

270
00:11:09,970 --> 00:11:08,149
more valuable cargo up to the space

271
00:11:11,079 --> 00:11:09,980
station on a regular basis yeah you so

272
00:11:14,380 --> 00:11:11,089
you're touching base on something that I

273
00:11:16,630 --> 00:11:14,390
wanted to talk about so the just space

274
00:11:18,460 --> 00:11:16,640
operations in general how do you see I

275
00:11:21,579 --> 00:11:18,470
mean I what is the significance of

276
00:11:23,350 --> 00:11:21,589
SpaceX this being a successful launch

277
00:11:25,630 --> 00:11:23,360
and docking to the International Station

278
00:11:27,600 --> 00:11:25,640
Space Station and then also how do you

279
00:11:30,519 --> 00:11:27,610
see the evolution of space operations

280
00:11:34,530 --> 00:11:30,529
after that you know within the next

281
00:11:37,389 --> 00:11:34,540
decade okay well I think this is a

282
00:11:40,660 --> 00:11:37,399
important mission but it is still a test

283
00:11:43,440 --> 00:11:40,670
flight so i have to probably caveat all

284
00:11:46,480 --> 00:11:43,450
our statements that you know this is a

285
00:11:48,639 --> 00:11:46,490
check out flight there's a lot of things

286
00:11:50,860 --> 00:11:48,649
that could go wrong I mean we've done a

287
00:11:52,420 --> 00:11:50,870
lot of work on the ground and a lot of

288
00:11:54,970 --> 00:11:52,430

testing to try and make sure that things

289
00:11:56,470 --> 00:11:54,980
work but invariably once you get into

290
00:11:57,880 --> 00:11:56,480
space something doesn't work the way

291
00:12:02,139 --> 00:11:57,890
you'd necessarily thought it was going

292
00:12:04,750 --> 00:12:02,149
to work so we'll look at the data and

293
00:12:07,180 --> 00:12:04,760
see how the mission went and then decide

294
00:12:09,780 --> 00:12:07,190
if we need another test flight or we can

295
00:12:12,730 --> 00:12:09,790
move on to the operations phase

296
00:12:14,530 --> 00:12:12,740
longer-term I expect that we're going to

297
00:12:16,329 --> 00:12:14,540
go into a full operational phase will go

298
00:12:18,100 --> 00:12:16,339
find what if there is a problem we'll

299
00:12:20,050 --> 00:12:18,110
find what the problem is go fix it and

300
00:12:21,970 --> 00:12:20,060
go fly again and then we'll get into

301
00:12:23,500 --> 00:12:21,980
long-term operations we're taking cargo

302
00:12:27,670 --> 00:12:23,510
on a regular basis up to the space

303
00:12:30,519 --> 00:12:27,680
station ideally we'll be moving on to

304
00:12:33,880 --> 00:12:30,529
commercial crew over the next in the

305
00:12:35,079 --> 00:12:33,890
next decade some of that the timing of

306
00:12:37,030 --> 00:12:35,089
that I think is going to be somewhat

307
00:12:39,490 --> 00:12:37,040
dependent on congressional funding and

308
00:12:42,340 --> 00:12:39,500
how much money they they give the

309
00:12:46,180 --> 00:12:42,350
program to develop the Commercial Crew

310
00:12:49,420 --> 00:12:46,190
capabilities I'd like to see us

311
00:12:50,889 --> 00:12:49,430
eventually having a regular Commercial

312
00:12:52,510 --> 00:12:50,899
Crew capability where we're launching

313
00:12:55,060 --> 00:12:52,520

astronauts from the u.s. up to the space

314
00:12:57,820 --> 00:12:55,070
station on a regular basis

315
00:12:59,770 --> 00:12:57,830
and then I think in the longer run we're

316
00:13:01,750 --> 00:12:59,780
going to be flying deeper and further

317
00:13:04,750 --> 00:13:01,760
into space on some of the NASA vehicles

318
00:13:08,770 --> 00:13:04,760
on a ryan spacecraft and and going on

319
00:13:11,470 --> 00:13:08,780
out into space to l2 and and asteroids

320
00:13:13,620 --> 00:13:11,480
and hopefully to doing some real serious

321
00:13:15,520 --> 00:13:13,630
planning for a Mars mission and

322
00:13:17,230 --> 00:13:15,530
contingency planning is there any kind

323
00:13:19,360 --> 00:13:17,240
of contingency if something were to go

324
00:13:21,370 --> 00:13:19,370
wrong doing this for this for this

325
00:13:23,230 --> 00:13:21,380
particular launch since it is a test

326
00:13:25,660 --> 00:13:23,240
flight yeah we've worked out all the

327
00:13:29,380 --> 00:13:25,670
contingency plans with all the various

328
00:13:32,910 --> 00:13:29,390
agencies since it is a commercial flight

329
00:13:36,760 --> 00:13:32,920
the FAA has a lot of authority and they

330
00:13:39,060 --> 00:13:36,770
they have the primary role with the NTSB

331
00:13:42,100 --> 00:13:39,070
to investigate a launch failure

332
00:13:45,160 --> 00:13:42,110
depending on when in the mission it

333
00:13:48,190 --> 00:13:45,170
happens there may be some support from

334
00:13:50,860 --> 00:13:48,200
the range the Air Force as it gets close

335
00:13:53,290 --> 00:13:50,870
to station there'll be some it would be

336
00:13:57,190 --> 00:13:53,300
primarily the space station and NASA's

337
00:13:59,110 --> 00:13:57,200
role to investigate any mishaps so we've

338
00:14:00,790 --> 00:13:59,120

got a plan laid out for all the phases

339
00:14:03,670 --> 00:14:00,800
of the mission and who's got primary

340
00:14:06,190 --> 00:14:03,680
responsibility I think in all cases our

341
00:14:08,680 --> 00:14:06,200
office would be closely coupled with

342
00:14:10,660 --> 00:14:08,690
SpaceX doing the investigations great

343
00:14:12,340 --> 00:14:10,670
well thank you again for coming it's all

344
00:14:13,780 --> 00:14:12,350
very very fascinating best of what I

345
00:14:15,370 --> 00:14:13,790
know you're taking off you're leaving us

346
00:14:16,960 --> 00:14:15,380
tomorrow correct to head to the Kennedy

347
00:14:18,760 --> 00:14:16,970
Space Center where they launch will be

348
00:14:20,050 --> 00:14:18,770
taking place yeah we have a Flight

349
00:14:21,370 --> 00:14:20,060
Readiness review a delta flight

350
00:14:23,080 --> 00:14:21,380
readiness for you in the morning

351
00:14:24,760 --> 00:14:23,090
tomorrow and then I leave for the cape

352
00:14:27,790 --> 00:14:24,770
and then we'll have a launch readiness

353
00:14:30,130 --> 00:14:27,800
review on Thursday leading up to the

354
00:14:33,310 --> 00:14:30,140
launch on Saturday great and again that

355
00:14:36,370 --> 00:14:33,320
a SpaceX Dragon launch is set to take

356
00:14:38,650 --> 00:14:36,380
place at three fifty five a.m. central

357
00:14:40,330 --> 00:14:38,660
time that is on May nineteen that is a

358
00:14:42,420 --> 00:14:40,340
Saturday and we will have live coverage

359
00:14:44,830 --> 00:14:42,430
here for you on NASA television

360
00:14:47,460 --> 00:14:44,840
beginning at two thirty a.m. central