1
00:00:09,190 --> 00:00:06,869
good afternoon everyone this is the

2
00:00:10,709 --> 00:00:09,200
pre-launch news conference for aquarius

3
00:00:12,549 --> 00:00:10,719
sac d

4
00:00:14,709 --> 00:00:12,559
aquarius sacd will be launched on a

5
00:00:15,589 --> 00:00:14,719
united launch alliance delta ii rocket

6
00:00:18,550 --> 00:00:15,599
on

7
00:00:21,189 --> 00:00:18,560
thursday morning at 7 20 a.m

8
00:00:23,429 --> 00:00:21,199
and here to talk now about the status of

9
00:00:24,790 --> 00:00:23,439
our launch preparations

10
00:00:26,070 --> 00:00:24,800
and a little bit about the mission

11
00:00:29,109 --> 00:00:26,080
itself

12
00:00:32,470 --> 00:00:29,119
is eric eihansen the aquarius program

13
00:00:35,190 --> 00:00:32,480

executive from nasa headquarters

14
00:00:37,270 --> 00:00:35,200
thanks george omar baez the nasa launch

15
00:00:41,990 --> 00:00:37,280
director from the kennedy space center

16
00:00:46,709 --> 00:00:44,950
vernon thorpe the nasa program manager

17
00:00:49,350 --> 00:00:46,719
for nasa missions from the united launch

18
00:00:53,830 --> 00:00:51,830
ahmed sen the aquarius project manager

19
00:00:57,029 --> 00:00:53,840
from the jet propulsion laboratory in

20
00:01:00,470 --> 00:00:58,709
and captain sean hannah the launch

21
00:01:02,790 --> 00:01:00,480
weather officer from the 30th weather

22
00:01:04,630 --> 00:01:02,800
squadron at vandenberg air force base in

23
00:01:07,030 --> 00:01:04,640
california

24
00:01:08,789 --> 00:01:07,040
and now we'll begin with eric ianson our

25
00:01:10,630 --> 00:01:08,799
aquarius program executive from nasa

26
00:01:13,670 --> 00:01:10,640
headquarters eric thanks george sorry

27
00:01:15,429 --> 00:01:13,680
for stepping over you on the first time

28
00:01:16,950 --> 00:01:15,439
in just two short days

29
00:01:19,190 --> 00:01:16,960
the aquarius tactics satellite will be

30
00:01:20,710 --> 00:01:19,200
launched into orbit and those of us on

31
00:01:21,990 --> 00:01:20,720
the mission team could not be more

32
00:01:23,830 --> 00:01:22,000
excited

33
00:01:26,550 --> 00:01:23,840
this important earth science mission is

34
00:01:28,870 --> 00:01:26,560
nasa's first attempt to measure ocean

35
00:01:30,230 --> 00:01:28,880
surface salinity from space

36
00:01:31,350 --> 00:01:30,240
obtaining global measurements of

37
00:01:34,149 --> 00:01:31,360
salinity

38
00:01:36,069 --> 00:01:34,159

is key to our better understanding of

39
00:01:39,350 --> 00:01:36,079
ocean circulation

40
00:01:40,789 --> 00:01:39,360
climate and the earth's water cycle

41
00:01:42,310 --> 00:01:40,799
in just a little bit there'll be a

42
00:01:46,230 --> 00:01:42,320
science briefing that will provide a lot

43
00:01:48,149 --> 00:01:46,240
more detail on uh salinity and

44
00:01:52,870 --> 00:01:48,159
the science of aquarius

45
00:01:57,190 --> 00:01:54,870
when aquarius sacd reaches orbit it will

46
00:01:59,350 --> 00:01:57,200
join 13 other nasa earth science

47
00:02:01,109 --> 00:01:59,360
satellites many of which are also making

48
00:02:04,230 --> 00:02:01,119
oceanographic measurements of parameters

49
00:02:06,310 --> 00:02:04,240
such as sea surface temperature wind

50
00:02:07,030 --> 00:02:06,320
sea level ocean color

51
00:02:08,869 --> 00:02:07,040
and

52
00:02:11,430 --> 00:02:08,879
changing ocean mass the addition of

53
00:02:14,229 --> 00:02:11,440
aquarius to the suite of instruments

54
00:02:16,550 --> 00:02:14,239
helps create a more complete picture of

55
00:02:19,190 --> 00:02:16,560
our oceans and the impact on the earth's

56
00:02:22,790 --> 00:02:20,710
another important aspect of the mission

57
00:02:25,430 --> 00:02:22,800
is nasa's continued partnership with the

58
00:02:27,830 --> 00:02:25,440
argentina space agency konai

59
00:02:30,790 --> 00:02:27,840
nasa frequently collaborates with other

60
00:02:32,550 --> 00:02:30,800
space agencies on its missions

61
00:02:33,990 --> 00:02:32,560
nasa and kona have successfully worked

62
00:02:36,630 --> 00:02:34,000
together on satellite missions over the

63
00:02:37,750 --> 00:02:36,640

last 15 years

64
00:02:39,910 --> 00:02:37,760
however

65
00:02:40,949 --> 00:02:39,920
aquarius sac d represents a great leap

66
00:02:42,550 --> 00:02:40,959
forward

67
00:02:44,309 --> 00:02:42,560
for the two agencies and our

68
00:02:46,470 --> 00:02:44,319
collaborations

69
00:02:49,270 --> 00:02:46,480
for one it is by far

70
00:02:50,630 --> 00:02:49,280
the most complex and challenging mission

71
00:02:52,630 --> 00:02:50,640
ever attempted through a partnership

72
00:02:55,270 --> 00:02:52,640
between the united states and argentina

73
00:02:57,670 --> 00:02:55,280
and it's as capable as any earth science

74
00:02:59,110 --> 00:02:57,680
mission that nasa has flown

75
00:03:01,990 --> 00:02:59,120
second

76
00:03:03,750 --> 00:03:02,000
the contributions of each agency are of

77
00:03:06,229 --> 00:03:03,760
equivalent importance

78
00:03:08,229 --> 00:03:06,239
wherein nasa is providing

79
00:03:09,910 --> 00:03:08,239
the primary instrument aquarius

80
00:03:12,229 --> 00:03:09,920
and the launch vehicle

81
00:03:14,309 --> 00:03:12,239
and kona is providing the

82
00:03:15,670 --> 00:03:14,319
satellite bus sac-d

83
00:03:17,910 --> 00:03:15,680
and the mission operations and ground

84
00:03:19,990 --> 00:03:17,920
system now we think about space missions

85
00:03:23,509 --> 00:03:20,000
we're often in awe of

86
00:03:25,990 --> 00:03:23,519
the technical challenges with developing

87
00:03:27,990 --> 00:03:26,000
instruments in spacecraft

88
00:03:29,830 --> 00:03:28,000

getting them into orbit and delivering

89
00:03:31,990 --> 00:03:29,840
breakthrough science

90
00:03:33,509 --> 00:03:32,000
in the case of aquarius sac d the

91
00:03:35,589 --> 00:03:33,519
logistics of the mission were as

92
00:03:37,350 --> 00:03:35,599
challenging as the technical aspects due

93
00:03:40,630 --> 00:03:37,360
to the multiple

94
00:03:41,910 --> 00:03:40,640
institutions involved and facilities

95
00:03:43,670 --> 00:03:41,920
i'd like to take a few minutes to walk

96
00:03:45,589 --> 00:03:43,680
you through the unusual path that this

97
00:03:51,509 --> 00:03:45,599
mission took to get to the launch pad so

98
00:03:55,350 --> 00:03:53,110
the aquarius instrument is comprised of

99
00:03:56,789 --> 00:03:55,360
a radiometer built at the nasa goddard

100
00:03:58,789 --> 00:03:56,799
space flight center in greenbelt

101
00:03:59,990 --> 00:03:58,799
maryland and a scatterometer built at

102
00:04:01,830 --> 00:04:00,000
the jet propulsion laboratory in

103
00:04:03,270 --> 00:04:01,840
pasadena california

104
00:04:05,110 --> 00:04:03,280
once both major components of the

105
00:04:06,949 --> 00:04:05,120
instrument were completed the radiometer

106
00:04:09,190 --> 00:04:06,959
was trucked across the united states

107
00:04:10,149 --> 00:04:09,200
from goddard to jpl where it was

108
00:04:14,630 --> 00:04:10,159
integrated with the rest of the

109
00:04:18,629 --> 00:04:16,469
following successful completion of

110
00:04:20,390 --> 00:04:18,639
testing of the fully integrated aquarius

111
00:04:22,550 --> 00:04:20,400
instrument it was placed in a shipping

112
00:04:24,150 --> 00:04:22,560
container and airlifted by the u s air

113
00:04:26,629 --> 00:04:24,160

force to san carlos de berloche

114
00:04:28,469 --> 00:04:26,639
argentina where under koni's direction

115
00:04:32,070 --> 00:04:28,479
it was integrated with the sac the

116
00:04:34,070 --> 00:04:32,080
observatory next graphic

117
00:04:35,430 --> 00:04:34,080
at about the same point in time koni was

118
00:04:38,550 --> 00:04:35,440
receiving instruments and instrument

119
00:04:40,310 --> 00:04:38,560
components from canada france and italy

120
00:04:42,390 --> 00:04:40,320
as additional science payloads to be

121
00:04:43,749 --> 00:04:42,400
added to the observatory a total of

122
00:04:45,670 --> 00:04:43,759
eight instruments with aquarius

123
00:04:46,950 --> 00:04:45,680
designated as the primary were

124
00:04:50,790 --> 00:04:46,960
integrated on the observatory in

125
00:04:55,030 --> 00:04:52,710
following the success the successful

126
00:04:57,350 --> 00:04:55,040
integration and functional testing of

127
00:04:59,990 --> 00:04:57,360
the observatory in argentina

128
00:05:01,670 --> 00:05:00,000
i'm sorry next graphic

129
00:05:03,110 --> 00:05:01,680
following the successful integration and

130
00:05:05,189 --> 00:05:03,120
functional testing of the observatory in

131
00:05:07,830 --> 00:05:05,199
argentina the observatory was airlifted

132
00:05:10,870 --> 00:05:07,840
again with the help of a u.s air force

133
00:05:13,029 --> 00:05:10,880
c-17 aircraft to sao jose

134
00:05:14,390 --> 00:05:13,039
dos campos brazil for environmental

135
00:05:16,310 --> 00:05:14,400
testing

136
00:05:18,390 --> 00:05:16,320
utilizing the brazilian space agency in

137
00:05:20,230 --> 00:05:18,400
pays state-of-the-art facilities

138
00:05:21,830 --> 00:05:20,240

aquarius sacd was subjected to a battery

139
00:05:23,510 --> 00:05:21,840
of environmental conditions to verify

140
00:05:26,150 --> 00:05:23,520
its readiness for what it will see

141
00:05:29,430 --> 00:05:26,160
during launch and on orbit

142
00:05:34,150 --> 00:05:31,189
after all these tests were successfully

143
00:05:35,909 --> 00:05:34,160
completed the observatory had a last

144
00:05:39,029 --> 00:05:35,919
transcontinental journey to make this

145
00:05:41,350 --> 00:05:39,039
time using two c-17 us air air force

146
00:05:43,270 --> 00:05:41,360
transports from two different air force

147
00:05:44,790 --> 00:05:43,280
bases the observatory and associated

148
00:05:47,110 --> 00:05:44,800
support equipment was airlifted from

149
00:05:49,270 --> 00:05:47,120
brazil to vandenberg air force base in

150
00:05:52,310 --> 00:05:49,280
california where it now awaits one last

151
00:05:53,830 --> 00:05:52,320
transport launch into orbit on june 9th

152
00:05:54,870 --> 00:05:53,840
back to you george all right thank you

153
00:05:57,350 --> 00:05:54,880
eric

154
00:05:59,270 --> 00:05:57,360
and now to our nasa launch director omar

155
00:06:01,029 --> 00:05:59,280
baez omar

156
00:06:02,629 --> 00:06:01,039
thank you george and good afternoon

157
00:06:03,990 --> 00:06:02,639
everyone and thank you for attending

158
00:06:05,909 --> 00:06:04,000
today's brief

159
00:06:08,390 --> 00:06:05,919
i'm very fortunate to be here

160
00:06:11,189 --> 00:06:08,400
representing scores of men and women

161
00:06:13,510 --> 00:06:11,199
from nasa and the lawn services program

162
00:06:15,350 --> 00:06:13,520
and united launch alliance

163
00:06:17,670 --> 00:06:15,360

these folks have been dedicated to

164
00:06:19,189 --> 00:06:17,680
analyzing fabricating

165
00:06:21,430 --> 00:06:19,199
assembling

166
00:06:23,029 --> 00:06:21,440
and checking out and testing the delta

167
00:06:25,189 --> 00:06:23,039
27320

168
00:06:27,909 --> 00:06:25,199
for the aquarius sac d mission

169
00:06:29,670 --> 00:06:27,919
which is set for this thursday morning

170
00:06:32,469 --> 00:06:29,680
if you could roll our

171
00:06:35,189 --> 00:06:32,479
short video here

172
00:06:39,430 --> 00:06:35,199
i'll talk to you about how this

173
00:06:41,350 --> 00:06:39,440
vehicle came about and was erected

174
00:06:44,230 --> 00:06:41,360
this particular delta ii

175
00:06:46,230 --> 00:06:44,240
is a two stage uh with three solid

176
00:06:48,390 --> 00:06:46,240
rocket motors this is the first stage

177
00:06:49,990 --> 00:06:48,400
being erected onto slick 2's

178
00:06:51,270 --> 00:06:50,000
launch mount

179
00:06:53,270 --> 00:06:51,280
this started

180
00:06:55,189 --> 00:06:53,280
on march 1st

181
00:06:57,510 --> 00:06:55,199
towards

182
00:06:59,749 --> 00:06:57,520
the end of the month we completed the

183
00:07:01,029 --> 00:06:59,759
erection and electrical testing of the

184
00:07:02,870 --> 00:07:01,039
vehicle

185
00:07:08,070 --> 00:07:02,880
and

186
00:07:11,430 --> 00:07:08,080
testing of the vehicle

187
00:07:13,909 --> 00:07:11,440
on its uh crew cert

188
00:07:16,230 --> 00:07:13,919

on may 20th

189
00:07:17,029 --> 00:07:16,240
this is the second stage it provides the

190
00:07:19,270 --> 00:07:17,039
uh

191
00:07:21,589 --> 00:07:19,280
the circularization of the orbit and the

192
00:07:23,430 --> 00:07:21,599
final oomph it's also uh the brains of

193
00:07:25,350 --> 00:07:23,440
the outfit with the flight computer

194
00:07:26,230 --> 00:07:25,360
being on top there

195
00:07:29,589 --> 00:07:26,240
um

196
00:07:32,710 --> 00:07:29,599
that is the encapsulated uh sec

197
00:07:33,430 --> 00:07:32,720
d with aquarius on it in its five-sector

198
00:07:35,589 --> 00:07:33,440
can

199
00:07:41,909 --> 00:07:35,599
being erected onto the tower and being

200
00:07:47,189 --> 00:07:43,830
this is what we call our 10-foot

201
00:07:50,550 --> 00:07:47,199
composite fairing it's a two-piece

202
00:07:59,430 --> 00:07:50,560
fairing that has successfully flown and

203
00:08:04,309 --> 00:08:01,430
and

204
00:08:06,629 --> 00:08:04,319
just to give you a summary of last of

205
00:08:08,550 --> 00:08:06,639
the week's event in last week's event

206
00:08:10,070 --> 00:08:08,560
last thursday we completed our flight

207
00:08:12,309 --> 00:08:10,080
readiness review

208
00:08:14,230 --> 00:08:12,319
that gave us the go to be able to go and

209
00:08:17,110 --> 00:08:14,240
load a

210
00:08:19,430 --> 00:08:17,120
second stage oxidizer which occurred on

211
00:08:20,710 --> 00:08:19,440
friday we loaded fuel on the second

212
00:08:22,869 --> 00:08:20,720
stage

213
00:08:25,589 --> 00:08:22,879

yesterday monday

214
00:08:28,309 --> 00:08:25,599
and finished our mission dress rehearsal

215
00:08:30,150 --> 00:08:28,319
quite successfully this morning

216
00:08:31,909 --> 00:08:30,160
we completed the agency's launch

217
00:08:34,790 --> 00:08:31,919
readiness review

218
00:08:36,790 --> 00:08:34,800
and that was successful

219
00:08:38,709 --> 00:08:36,800
the operation tomorrow

220
00:08:41,670 --> 00:08:38,719
afternoon includes closing out the

221
00:08:43,350 --> 00:08:41,680
spacecraft payload fairing access doors

222
00:08:45,990 --> 00:08:43,360
loading rp1

223
00:08:47,590 --> 00:08:46,000
in the first stage and removing the mst

224
00:08:50,230 --> 00:08:47,600
which is currently

225
00:08:52,550 --> 00:08:50,240
going to occur around 10 pm

226
00:08:54,630 --> 00:08:52,560
about 3 am in the morning

227
00:08:57,350 --> 00:08:54,640
our management team will be on station

228
00:09:00,949 --> 00:08:57,360
in preparation for initiating the

229
00:09:03,030 --> 00:09:00,959
terminal count at 4 20 in the morning

230
00:09:05,430 --> 00:09:03,040
we will get a weather brief and then

231
00:09:07,269 --> 00:09:05,440
proceed into cryogenic load at about 5

232
00:09:08,790 --> 00:09:07,279
30 in the morning

233
00:09:09,750 --> 00:09:08,800
we will check our flight termination

234
00:09:12,949 --> 00:09:09,760
system

235
00:09:13,750 --> 00:09:12,959
and perform the vehicle engine sloughs

236
00:09:15,990 --> 00:09:13,760
and

237
00:09:19,030 --> 00:09:16,000
have a 20-minute built-in hold at about

238
00:09:21,190 --> 00:09:19,040

t-minus 15 minutes and a 10-minute

239
00:09:23,269 --> 00:09:21,200
built-in hold

240
00:09:25,269 --> 00:09:23,279
at t minus four minutes which allows us

241
00:09:27,829 --> 00:09:25,279
to synchronize if we run behind on any

242
00:09:29,910 --> 00:09:27,839
of our uh previous activities

243
00:09:31,509 --> 00:09:29,920
i will give my final clear to launch at

244
00:09:34,470 --> 00:09:31,519
t minus three minutes

245
00:09:36,310 --> 00:09:34,480
and liftoff is scheduled for 7 20 and 13

246
00:09:38,150 --> 00:09:36,320
seconds tomorrow and we have a

247
00:09:40,310 --> 00:09:38,160
five-minute window

248
00:09:41,590 --> 00:09:40,320
and back to you george all right thank

249
00:09:43,990 --> 00:09:41,600
you omar

250
00:09:46,150 --> 00:09:44,000
and now to vernon thorpe he is the

251
00:09:47,110 --> 00:09:46,160
united launch alliance nasa program

252
00:09:48,630 --> 00:09:47,120
manager

253
00:09:51,350 --> 00:09:48,640
vern

254
00:09:54,470 --> 00:09:51,360
okay thanks george on behalf of michael

255
00:09:56,550 --> 00:09:54,480
gass and the 3 700 men and women of

256
00:09:58,389 --> 00:09:56,560
united launch alliance i'd like to say

257
00:10:00,870 --> 00:09:58,399
that we're very proud to be supporting

258
00:10:03,190 --> 00:10:00,880
nasa and the launch of the aquarius sac

259
00:10:05,590 --> 00:10:03,200
the observatory our team has worked hard

260
00:10:07,350 --> 00:10:05,600
with nasa and konai over the last few

261
00:10:09,670 --> 00:10:07,360
years to get to this point and we're

262
00:10:11,030 --> 00:10:09,680
ready to launch this unique mission

263
00:10:13,030 --> 00:10:11,040

we're honored to play a role in

264
00:10:14,069 --> 00:10:13,040
supporting nasa's science missions and

265
00:10:15,350 --> 00:10:14,079
i'd like to thank him for this

266
00:10:17,269 --> 00:10:15,360
opportunity

267
00:10:19,190 --> 00:10:17,279
for those of you who like statistics i

268
00:10:21,990 --> 00:10:19,200
have a few here associated with this

269
00:10:23,190 --> 00:10:22,000
launch this will be ula's sixth launch

270
00:10:25,910 --> 00:10:23,200
of the year

271
00:10:28,069 --> 00:10:25,920
it will be the 149th

272
00:10:29,509 --> 00:10:28,079
delta ii launch

273
00:10:31,269 --> 00:10:29,519
and the 40th one

274
00:10:32,710 --> 00:10:31,279
the 40th delta ii from vandenberg air

275
00:10:35,910 --> 00:10:32,720
force base

276
00:10:37,750 --> 00:10:35,920
it will also be the 51st launch that ula

277
00:10:39,590 --> 00:10:37,760
has performed since the atlas and delta

278
00:10:40,949 --> 00:10:39,600
programs came together under the ula

279
00:10:41,910 --> 00:10:40,959
banner

280
00:10:44,230 --> 00:10:41,920
and

281
00:10:46,389 --> 00:10:44,240
this launch also kicks off a very busy

282
00:10:48,389 --> 00:10:46,399
six month period of activity for both

283
00:10:49,829 --> 00:10:48,399
ula and nasa it will be the first of

284
00:10:52,069 --> 00:10:49,839
five missions that we are going to

285
00:10:54,310 --> 00:10:52,079
launch between now and november of this

286
00:10:56,150 --> 00:10:54,320
year from both california and florida

287
00:11:00,230 --> 00:10:56,160
for nasa

288
00:11:02,069 --> 00:11:00,240

aquarius will launch on a 7320-10

289
00:11:04,470 --> 00:11:02,079
configuration of delta ii that means

290
00:11:06,710 --> 00:11:04,480
it'll have three solid rocket boosters

291
00:11:08,389 --> 00:11:06,720
and a 10-foot composite fairing the

292
00:11:11,990 --> 00:11:08,399
first stage is powered by a pratt

293
00:11:14,150 --> 00:11:12,000
whitney rocketdyne rs 27a main engine

294
00:11:16,470 --> 00:11:14,160
and the second stage has an aerojet

295
00:11:17,269 --> 00:11:16,480
aj-10 engine

296
00:11:19,509 --> 00:11:17,279
and

297
00:11:21,509 --> 00:11:19,519
uh when we launch the delta ii vehicle

298
00:11:23,269 --> 00:11:21,519
will place the satellite into a sun

299
00:11:26,550 --> 00:11:23,279
synchronous orbit with an altitude of

300
00:11:28,310 --> 00:11:26,560
about 650 kilometers about 400 miles

301
00:11:29,910 --> 00:11:28,320
i have a short video clip that

302
00:11:31,509 --> 00:11:29,920
summarizes the launch sequence that

303
00:11:35,030 --> 00:11:31,519
we'll see on thursday if we could roll

304
00:11:41,269 --> 00:11:37,990
okay we'll lift off at 7 20. 36 seconds

305
00:11:43,269 --> 00:11:41,279
after lik liftoff will go supersonic the

306
00:11:45,110 --> 00:11:43,279
srbs will continue to burn for about a

307
00:11:47,030 --> 00:11:45,120
minute they'll shut down in a minute and

308
00:11:49,670 --> 00:11:47,040
four seconds we'll jettison them about

309
00:11:50,790 --> 00:11:49,680
35 seconds later once we're in a safe

310
00:11:52,389 --> 00:11:50,800
region

311
00:11:55,670 --> 00:11:52,399
and the

312
00:11:57,990 --> 00:11:55,680
main engine will continue to burn for

313
00:11:59,269 --> 00:11:58,000

four minutes and 24 seconds total at

314
00:12:01,350 --> 00:11:59,279
that time the propellants will be

315
00:12:03,269 --> 00:12:01,360
depleted we'll separate the first stage

316
00:12:05,990 --> 00:12:03,279
from the second stage and do the first

317
00:12:08,870 --> 00:12:06,000
of two upper stage engine firings

318
00:12:11,590 --> 00:12:08,880
the first engine firing will

319
00:12:13,190 --> 00:12:11,600
last about six minutes during that

320
00:12:14,790 --> 00:12:13,200
firing will jettison the payload fairing

321
00:12:16,790 --> 00:12:14,800
since we're out of the atmosphere then

322
00:12:17,670 --> 00:12:16,800
we'll enter a 41 minute parking orbit

323
00:12:19,829 --> 00:12:17,680
coast

324
00:12:21,670 --> 00:12:19,839
we'll do some thermal control rolls

325
00:12:23,509 --> 00:12:21,680
to keep all the temperatures within

326
00:12:25,829 --> 00:12:23,519
limits and then we'll do a second burn

327
00:12:27,430 --> 00:12:25,839
that second burn will only last about 12

328
00:12:29,110 --> 00:12:27,440
seconds that'll put us in the final

329
00:12:31,350 --> 00:12:29,120
orbit that we need to be

330
00:12:33,509 --> 00:12:31,360
we'll turn to the separation attitude

331
00:12:36,949 --> 00:12:33,519
send the separation signals

332
00:12:38,230 --> 00:12:36,959
and at about 56 minutes 42 seconds after

333
00:12:40,470 --> 00:12:38,240
liftoff will separate from the

334
00:12:42,150 --> 00:12:40,480
spacecraft and then the upper stage will

335
00:12:43,829 --> 00:12:42,160
continue to do some post separation

336
00:12:45,509 --> 00:12:43,839
maneuvering to make sure we put

337
00:12:49,430 --> 00:12:45,519
ourselves into a different orbit and

338
00:12:53,990 --> 00:12:51,190

this mission represents

339
00:12:57,030 --> 00:12:54,000
the culmination of years of hard work by

340
00:12:58,629 --> 00:12:57,040
teams at nasa konai and ula

341
00:13:00,790 --> 00:12:58,639
and we anticipate that our delta ii

342
00:13:02,949 --> 00:13:00,800
vehicle will perform well and we hope to

343
00:13:04,550 --> 00:13:02,959
accurately place the spacecraft into its

344
00:13:06,470 --> 00:13:04,560
planned orbit to allow

345
00:13:08,710 --> 00:13:06,480
aquarius to offer scientists

346
00:13:11,350 --> 00:13:08,720
uh the first space-based global

347
00:13:12,710 --> 00:13:11,360
observations of ocean surface salinity

348
00:13:14,310 --> 00:13:12,720
so once again thanks to all of our

349
00:13:16,069 --> 00:13:14,320
mission partners for helping us get to

350
00:13:18,710 --> 00:13:16,079
this point and george i'll turn it back

351
00:13:20,790 --> 00:13:18,720
to you all right thank you vern

352
00:13:22,710 --> 00:13:20,800
now to ahmet sen the aquarius project

353
00:13:25,430 --> 00:13:22,720
manager from the jet propulsion

354
00:13:28,230 --> 00:13:25,440
laboratory in pasadena ahmet

355
00:13:33,750 --> 00:13:30,949
what vern showed you is how we got the

356
00:13:35,750 --> 00:13:33,760
spacecraft into orbit and from now on i

357
00:13:37,430 --> 00:13:35,760
will tell you how

358
00:13:40,230 --> 00:13:37,440
we are at orbit and what we're going to

359
00:13:41,189 --> 00:13:40,240
do for the first few hours to go

360
00:13:42,470 --> 00:13:41,199
and

361
00:13:44,310 --> 00:13:42,480
thereafter

362
00:13:46,870 --> 00:13:44,320
i'm going to take you a little in a

363
00:13:48,629 --> 00:13:46,880

backward journey back in time

364
00:13:50,310 --> 00:13:48,639
over the last three years what we have

365
00:13:51,430 --> 00:13:50,320
done speed it up

366
00:13:55,750 --> 00:13:51,440
in the

367
00:13:57,189 --> 00:13:55,760
take you in about two minutes to run the

368
00:14:00,790 --> 00:13:57,199
whole three years

369
00:14:07,910 --> 00:14:04,150
we are now in space

370
00:14:10,710 --> 00:14:07,920
and uh vern's wonderful rocket put us up

371
00:14:12,069 --> 00:14:10,720
at 408 miles above the earth

372
00:14:13,509 --> 00:14:12,079
going around

373
00:14:15,670 --> 00:14:13,519
well

374
00:14:16,949 --> 00:14:15,680
it doesn't exactly look like this we

375
00:14:19,189 --> 00:14:16,959
have the

376
00:14:21,829 --> 00:14:19,199
gold reflector that you see that is the

377
00:14:24,470 --> 00:14:21,839
antenna for aquarius it still remains

378
00:14:25,990 --> 00:14:24,480
stowed or put together the way it was in

379
00:14:27,269 --> 00:14:26,000
launch

380
00:14:29,910 --> 00:14:27,279
at about

381
00:14:30,949 --> 00:14:29,920
an hour after separation from the launch

382
00:14:33,509 --> 00:14:30,959
vehicle

383
00:14:34,310 --> 00:14:33,519
the solar array gets deployed

384
00:14:37,430 --> 00:14:34,320
and

385
00:14:40,230 --> 00:14:37,440
we starting start to get telemetry or

386
00:14:42,790 --> 00:14:40,240
information back from the spacecraft

387
00:14:44,949 --> 00:14:42,800
to the ground stations on the ground

388
00:14:47,030 --> 00:14:44,959

we are now over africa

389
00:14:49,750 --> 00:14:47,040
and the stations over africa starts

390
00:14:51,350 --> 00:14:49,760
telling us the health of the satellite

391
00:14:54,150 --> 00:14:51,360
the energy that's being collected over

392
00:14:56,230 --> 00:14:54,160
the solar panels very exciting time

393
00:14:59,350 --> 00:14:56,240
and over the next few hours we'll cross

394
00:15:01,030 --> 00:14:59,360
over many ground stations over nasa

395
00:15:03,829 --> 00:15:01,040
ground stations and konai ground

396
00:15:06,069 --> 00:15:03,839
stations to basically see

397
00:15:08,949 --> 00:15:06,079
what and how the spacecraft is

398
00:15:11,829 --> 00:15:08,959
performing so that in a nutshell over

399
00:15:13,590 --> 00:15:11,839
the la over the next day after orbit

400
00:15:16,310 --> 00:15:13,600
that's what's going to be

401
00:15:17,750 --> 00:15:16,320
now i will take you a little bit further

402
00:15:21,269 --> 00:15:17,760
just because we have a spacecraft in

403
00:15:22,790 --> 00:15:21,279
orbit we do not take immediately

404
00:15:25,110 --> 00:15:22,800
salinity data

405
00:15:27,430 --> 00:15:25,120
it takes about 25 days to check out how

406
00:15:29,749 --> 00:15:27,440
the spacecraft behaves in orbit right

407
00:15:31,670 --> 00:15:29,759
the attitude the power and all the

408
00:15:33,670 --> 00:15:31,680
thermal controls so once we are

409
00:15:35,430 --> 00:15:33,680
satisfied then comes the commissioning

410
00:15:37,990 --> 00:15:35,440
of the instrument so the aquarius

411
00:15:40,710 --> 00:15:38,000
instrument commissions at about 25 days

412
00:15:41,990 --> 00:15:40,720
after launch a period to wait but it's

413
00:15:43,350 --> 00:15:42,000

worth the wait to check it out

414
00:15:45,110 --> 00:15:43,360
completely

415
00:15:49,509 --> 00:15:45,120
now

416
00:15:50,949 --> 00:15:49,519
take you back and do a time roll back to

417
00:15:53,749 --> 00:15:50,959
the past

418
00:15:55,990 --> 00:15:53,759
back to 2008 and then i'll run you

419
00:15:56,949 --> 00:15:56,000
forward back in time again to the day we

420
00:16:00,310 --> 00:15:56,959
are

421
00:16:02,150 --> 00:16:00,320
so let's uh go to the next slide

422
00:16:03,910 --> 00:16:02,160
the next slide basically gives you an

423
00:16:05,350 --> 00:16:03,920
idea how we came about putting this

424
00:16:06,550 --> 00:16:05,360
instrument together

425
00:16:07,990 --> 00:16:06,560
you know when you put together an

426
00:16:09,990 --> 00:16:08,000
experiment you always think about a

427
00:16:12,550 --> 00:16:10,000
theory and to prove the theory you build

428
00:16:15,749 --> 00:16:12,560
an experiment so we built an experiment

429
00:16:18,550 --> 00:16:15,759
about in the mid to late 90s at jpl

430
00:16:21,030 --> 00:16:18,560
we're producing a pond we put salt water

431
00:16:23,430 --> 00:16:21,040
and detected how we could detect

432
00:16:25,269 --> 00:16:23,440
salinity right if we were to prove the

433
00:16:27,990 --> 00:16:25,279
theory and we did

434
00:16:30,629 --> 00:16:28,000
the scientists then took one measure

435
00:16:33,350 --> 00:16:30,639
to take this equipment onto an airplane

436
00:16:35,829 --> 00:16:33,360
validate it as if it would be an

437
00:16:37,269 --> 00:16:35,839
airborne instrument and we proved it it

438
00:16:39,670 --> 00:16:37,279

was right

439
00:16:41,509 --> 00:16:39,680
then that undaunting task came about

440
00:16:43,509 --> 00:16:41,519
give the scientists now giving it to the

441
00:16:45,430 --> 00:16:43,519
engineers saying build us something that

442
00:16:47,350 --> 00:16:45,440
we will go to space and look at the

443
00:16:50,949 --> 00:16:47,360
world globally

444
00:16:52,790 --> 00:16:50,959
quickly and all around so there comes

445
00:16:55,030 --> 00:16:52,800
the next piece of the puzzle next

446
00:16:57,509 --> 00:16:55,040
picture please

447
00:16:59,590 --> 00:16:57,519
on the next picture you see a radiometer

448
00:17:01,670 --> 00:16:59,600
in its flight hardware as we call it in

449
00:17:03,910 --> 00:17:01,680
boxes many pieces of the radiometer put

450
00:17:06,309 --> 00:17:03,920
together it got it as eric mentioned to

451
00:17:08,549 --> 00:17:06,319
us that these the radiometer was built

452
00:17:11,350 --> 00:17:08,559
at goddard and once it was assembled and

453
00:17:13,669 --> 00:17:11,360
tested was moved to jet propulsion lab

454
00:17:16,789 --> 00:17:13,679
in pasadena california all the way

455
00:17:19,270 --> 00:17:16,799
trucking itself about 3 500 miles so

456
00:17:20,710 --> 00:17:19,280
let's go to the next page

457
00:17:23,270 --> 00:17:20,720
this what you see

458
00:17:25,270 --> 00:17:23,280
is a picture of a completed aquarius

459
00:17:27,429 --> 00:17:25,280
instrument as it sits

460
00:17:29,029 --> 00:17:27,439
just days before it was going to get

461
00:17:31,990 --> 00:17:29,039
shipped to argentina

462
00:17:34,150 --> 00:17:32,000
as you see the antenna or the reflector

463
00:17:35,830 --> 00:17:34,160

is remains stowed in a transport

464
00:17:38,310 --> 00:17:35,840
condition so that we can

465
00:17:41,750 --> 00:17:38,320
safely transport it across

466
00:17:44,549 --> 00:17:41,760
the the continents across the hemisphere

467
00:17:47,029 --> 00:17:44,559
to argentina so what i'm going to do is

468
00:17:49,669 --> 00:17:47,039
a lapse photography that takes you how

469
00:17:51,430 --> 00:17:49,679
we build the equipment at jpl and move

470
00:17:53,830 --> 00:17:51,440
it forward let's roll the video at this

471
00:17:59,909 --> 00:17:57,270
so the video takes us to pasadena's jet

472
00:18:02,390 --> 00:17:59,919
propulsion laboratory here as you see

473
00:18:04,789 --> 00:18:02,400
the instrument is being constructed

474
00:18:08,230 --> 00:18:04,799
not very quickly but it's been a time

475
00:18:10,470 --> 00:18:08,240
lapse video of months that took us to

476
00:18:12,830 --> 00:18:10,480
put the sequence together

477
00:18:15,830 --> 00:18:12,840
once we have and you will recognize the

478
00:18:17,990 --> 00:18:15,840
features we will place the instrument on

479
00:18:20,630 --> 00:18:18,000
its shipping container as you see now

480
00:18:22,789 --> 00:18:20,640
close the lid and take it away

481
00:18:25,350 --> 00:18:22,799
to its transport journey through an

482
00:18:27,430 --> 00:18:25,360
airplane all the way to argentina you

483
00:18:30,230 --> 00:18:27,440
are now in argentina and that same

484
00:18:32,070 --> 00:18:30,240
container is now being taken apart the

485
00:18:35,029 --> 00:18:32,080
instrument taken out

486
00:18:36,150 --> 00:18:35,039
and carried off to the spacecraft where

487
00:18:39,029 --> 00:18:36,160
it's sitting

488
00:18:40,789 --> 00:18:39,039

in a clean room being put together

489
00:18:42,870 --> 00:18:40,799
so the instrument is now on top of the

490
00:18:44,950 --> 00:18:42,880
spacecraft in argentina

491
00:18:45,830 --> 00:18:44,960
they work as fast as we do too

492
00:18:48,070 --> 00:18:45,840
so

493
00:18:50,470 --> 00:18:48,080
we now take it back to brazil

494
00:18:52,310 --> 00:18:50,480
to do environmental testing this test

495
00:18:54,549 --> 00:18:52,320
will make sure that everything will work

496
00:18:56,630 --> 00:18:54,559
in space in the space environment

497
00:18:58,789 --> 00:18:56,640
we then brought the whole instrument and

498
00:19:00,950 --> 00:18:58,799
the spacecraft back to vandenberg that's

499
00:19:03,350 --> 00:19:00,960
where we sit and we see the airplane

500
00:19:05,669 --> 00:19:03,360
coming into a stop and we move into a

501
00:19:07,990 --> 00:19:05,679
payload processing facility where we

502
00:19:09,750 --> 00:19:08,000
check out the spacecraft after it's all

503
00:19:12,150 --> 00:19:09,760
of its journey

504
00:19:13,190 --> 00:19:12,160
it's time to now move on to go into the

505
00:19:16,310 --> 00:19:13,200
rocket

506
00:19:17,590 --> 00:19:16,320
we button it up into a canister to make

507
00:19:20,789 --> 00:19:17,600
a journey

508
00:19:22,830 --> 00:19:20,799
for about 20 miles around the coastline

509
00:19:25,669 --> 00:19:22,840
to slick to where we're going to be

510
00:19:27,909 --> 00:19:25,679
launching the rocket

511
00:19:31,270 --> 00:19:27,919
it's a night move and we move it up to

512
00:19:33,830 --> 00:19:31,280
the gantry and we just keep on slowly

513
00:19:35,750 --> 00:19:33,840

lifting it and putting it on top of the

514
00:19:37,350 --> 00:19:35,760
rocket

515
00:19:38,390 --> 00:19:37,360
we are now ready to put it on top of the

516
00:19:40,390 --> 00:19:38,400
rocket

517
00:19:43,510 --> 00:19:40,400
bolting it very carefully

518
00:19:45,669 --> 00:19:43,520
and cleanly so that we maintain a proper

519
00:19:47,110 --> 00:19:45,679
environment for the spacecraft

520
00:19:49,510 --> 00:19:47,120
once the spacecraft was put on top of

521
00:19:51,270 --> 00:19:49,520
the rocket we did test it again to make

522
00:19:52,549 --> 00:19:51,280
sure everything remains alive and

523
00:19:54,310 --> 00:19:52,559
healthy

524
00:19:56,150 --> 00:19:54,320
once it's done

525
00:19:58,390 --> 00:19:56,160
as vern showed

526
00:19:59,909 --> 00:19:58,400
you the picture of the fairing and omar

527
00:20:01,029 --> 00:19:59,919
showed you the fairing that's where it

528
00:20:03,430 --> 00:20:01,039
stands

529
00:20:06,070 --> 00:20:03,440
and then let's go to the next picture

530
00:20:08,230 --> 00:20:06,080
this is the fairing closed completely

531
00:20:10,310 --> 00:20:08,240
with a small little access hole remain

532
00:20:11,750 --> 00:20:10,320
open for the last check and that's

533
00:20:12,950 --> 00:20:11,760
what's going to happen in the next few

534
00:20:15,510 --> 00:20:12,960
days

535
00:20:18,230 --> 00:20:15,520
so this is where we stand today a very

536
00:20:19,190 --> 00:20:18,240
very important moment for you to get

537
00:20:23,909 --> 00:20:19,200
ready

538
00:20:25,590 --> 00:20:23,919

in two days from now let's go to the

539
00:20:27,430 --> 00:20:25,600
next picture

540
00:20:28,870 --> 00:20:27,440
so i leave you now with the picture that

541
00:20:30,549 --> 00:20:28,880
it will look like

542
00:20:31,669 --> 00:20:30,559
on june 9th

543
00:20:34,470 --> 00:20:31,679
where we're going to be sitting on the

544
00:20:36,630 --> 00:20:34,480
launch pad getting ready to deploy up

545
00:20:37,590 --> 00:20:36,640
into space

546
00:20:38,950 --> 00:20:37,600
george

547
00:20:40,549 --> 00:20:38,960
thank you ahmed

548
00:20:42,549 --> 00:20:40,559
we'll look now at the weather forecast

549
00:20:44,789 --> 00:20:42,559
for thursday with captain sean hanna

550
00:20:46,149 --> 00:20:44,799
from the 30th weather squadron captain

551
00:20:47,669 --> 00:20:46,159
hannah

552
00:20:49,029 --> 00:20:47,679
good afternoon

553
00:20:50,470 --> 00:20:49,039
june is a very stable month for the

554
00:20:52,070 --> 00:20:50,480
central coast

555
00:20:54,070 --> 00:20:52,080
marked by the marine layer rolling in in

556
00:20:55,190 --> 00:20:54,080
the late afternoon in apartment by the

557
00:20:56,390 --> 00:20:55,200
mid morning

558
00:20:58,870 --> 00:20:56,400
the sea breeze kicks in during the

559
00:21:00,950 --> 00:20:58,880
afternoon hours providing winds

560
00:21:02,470 --> 00:21:00,960
15 to 20 knots

561
00:21:05,830 --> 00:21:02,480
this past week we've seen a rather

562
00:21:07,510 --> 00:21:05,840
unseasonable weather pattern persist

563
00:21:09,510 --> 00:21:07,520

as a low system moves through the

564
00:21:12,149 --> 00:21:09,520
vandenberg area which is

565
00:21:14,390 --> 00:21:12,159
more typical of a february time frame

566
00:21:16,870 --> 00:21:14,400
as this apartment system moves eastward

567
00:21:18,789 --> 00:21:16,880
our normal june weather will be

568
00:21:20,630 --> 00:21:18,799
reassert itself once again with the rain

569
00:21:24,149 --> 00:21:20,640
layer and fog

570
00:21:27,750 --> 00:21:25,669
looking at satellite

571
00:21:29,190 --> 00:21:27,760
high pressure is dominating the eastern

572
00:21:31,830 --> 00:21:29,200
part of the pacific and the central

573
00:21:34,549 --> 00:21:31,840
coast and there's a lot of low clouds

574
00:21:36,549 --> 00:21:34,559
along the ocean and the

575
00:21:38,390 --> 00:21:36,559
coastal region

576
00:21:40,070 --> 00:21:38,400
another weak system is pushing out of

577
00:21:42,710 --> 00:21:40,080
canada into the northwestern part of the

578
00:21:45,510 --> 00:21:42,720
u.s and that will be around our area for

579
00:21:52,070 --> 00:21:45,520
launch day

580
00:21:53,590 --> 00:21:52,080
9th

581
00:21:55,430 --> 00:21:53,600
that marine layer will reassert itself

582
00:21:58,149 --> 00:21:55,440
like i said before and we've seen

583
00:22:00,789 --> 00:21:58,159
ceilings from 200 1200 foot with

584
00:22:03,510 --> 00:22:00,799
visibility one to two miles in fog

585
00:22:07,029 --> 00:22:03,520
temperatures be mid-40s to low 50s

586
00:22:08,950 --> 00:22:07,039
with winds northwesterly 10 to 15 knots

587
00:22:10,710 --> 00:22:08,960
next slide

588
00:22:13,029 --> 00:22:10,720

that gives us a probability of violation

589
00:22:15,990 --> 00:22:13,039
of zero percent with no weather

590
00:22:17,590 --> 00:22:16,000
constraints of concerns

591
00:22:19,510 --> 00:22:17,600
next slide

592
00:22:21,669 --> 00:22:19,520
if by chance we do go into a 24-hour

593
00:22:23,190 --> 00:22:21,679
scrub on friday morning

594
00:22:24,549 --> 00:22:23,200
the marine layer and the fog will be

595
00:22:26,870 --> 00:22:24,559
back in the area

596
00:22:28,470 --> 00:22:26,880
we'll see the stratus persist again

597
00:22:30,870 --> 00:22:28,480
200 to 800 foot

598
00:22:32,390 --> 00:22:30,880
two to four miles visibility with fog

599
00:22:35,110 --> 00:22:32,400
temperatures still the same

600
00:22:37,350 --> 00:22:35,120
mid 40s low 50s and as northwesterly

601
00:22:39,029 --> 00:22:37,360
winds 8 to 12 knots

602
00:22:41,830 --> 00:22:39,039
and overall probability violation of

603
00:22:43,510 --> 00:22:41,840
zero percent again

604
00:22:46,070 --> 00:22:43,520
back to you george all right thank you

605
00:22:47,830 --> 00:22:46,080
captain hannah now we're ready now to

606
00:22:49,590 --> 00:22:47,840
take questions we'll take some questions

607
00:22:52,230 --> 00:22:49,600
here then we have some questions from a

608
00:22:55,190 --> 00:22:52,240
couple of our other nasa field centers

609
00:23:00,789 --> 00:22:55,200
but let's start over here if we got uh

610
00:23:04,470 --> 00:23:03,029
nora wallace santa barbara news press

611
00:23:06,470 --> 00:23:04,480
eric you talked a little bit you said

612
00:23:08,549 --> 00:23:06,480
that this is by far the most complex and

613
00:23:10,549 --> 00:23:08,559

challenging mission and we've seen the

614
00:23:12,630 --> 00:23:10,559
slides seeing where the the satellite

615
00:23:14,630 --> 00:23:12,640
has gone all over the world um can you

616
00:23:16,070 --> 00:23:14,640
talk a little bit more about that in in

617
00:23:18,149 --> 00:23:16,080
terms of like the number of people

618
00:23:20,070 --> 00:23:18,159
involved and if there are other elements

619
00:23:22,149 --> 00:23:20,080
that made it so complex rather than just

620
00:23:25,270 --> 00:23:22,159
the distance

621
00:23:28,310 --> 00:23:25,280
a lot of it is is uh the number of

622
00:23:30,149 --> 00:23:28,320
players involved as i mentioned um

623
00:23:31,909 --> 00:23:30,159
in addition to the primary uh

624
00:23:34,950 --> 00:23:31,919
relationship between the united states

625
00:23:37,909 --> 00:23:34,960
and argentina and nasa and konai

626
00:23:39,029 --> 00:23:37,919
you've also have uh contributions from

627
00:23:41,269 --> 00:23:39,039
three other

628
00:23:43,029 --> 00:23:41,279
countries uh canada

629
00:23:44,789 --> 00:23:43,039
um france and italy providing

630
00:23:46,310 --> 00:23:44,799
instruments

631
00:23:47,750 --> 00:23:46,320
and also the

632
00:23:49,430 --> 00:23:47,760
environmental testing was done in brazil

633
00:23:51,830 --> 00:23:49,440
so you know the transport was was

634
00:23:54,870 --> 00:23:51,840
definitely a big factor

635
00:23:57,750 --> 00:23:54,880
but this is a quite a large observatory

636
00:23:58,710 --> 00:23:57,760
you know 1400 kilograms approximately

637
00:24:00,070 --> 00:23:58,720
and

638
00:24:02,870 --> 00:24:00,080

we have

639
00:24:05,350 --> 00:24:02,880
eight a total of eight instruments on it

640
00:24:06,630 --> 00:24:05,360
you know that's much larger than much

641
00:24:08,470 --> 00:24:06,640
more complex than anything we've ever

642
00:24:09,350 --> 00:24:08,480
attempted you know in a mission like

643
00:24:11,110 --> 00:24:09,360
this

644
00:24:12,470 --> 00:24:11,120
um you know we've got aquarius is

645
00:24:14,630 --> 00:24:12,480
definitely the primary instrument it's

646
00:24:15,669 --> 00:24:14,640
the largest um but you've got all these

647
00:24:16,950 --> 00:24:15,679
other instruments and we need to make

648
00:24:18,070 --> 00:24:16,960
sure that they're all working that the

649
00:24:20,630 --> 00:24:18,080
observatory is going to be able to

650
00:24:23,110 --> 00:24:20,640
support all of those so it's it's been a

651
00:24:24,230 --> 00:24:23,120
a challenge from a technical standpoint

652
00:24:25,909 --> 00:24:24,240
it's been a challenge from a

653
00:24:27,110 --> 00:24:25,919
coordination standpoint it's been a

654
00:24:31,110 --> 00:24:27,120
challenge from a transportation

655
00:24:35,350 --> 00:24:33,029
janine scully san maria times long poke

656
00:24:37,590 --> 00:24:35,360
record is there any uh if if you do slip

657
00:24:39,269 --> 00:24:37,600
does the weather change at all or um i

658
00:24:43,590 --> 00:24:39,279
mean not the weather the window change

659
00:24:45,909 --> 00:24:43,600
it all or does it remain 720 to 725

660
00:24:47,830 --> 00:24:45,919
for the next attempt it's approximately

661
00:24:51,350 --> 00:24:47,840
in that time period it still stays in

662
00:24:54,230 --> 00:24:52,789
any further questions over here at the

663
00:24:56,630 --> 00:24:54,240

moment

664
00:24:58,470 --> 00:24:56,640
all right let's uh go to jeff propulsion

665
00:25:13,269 --> 00:24:58,480
laboratory in pasadena there's a

666
00:25:16,390 --> 00:25:14,870
uh having observed

667
00:25:18,310 --> 00:25:16,400
the launch of the urban carbon

668
00:25:20,230 --> 00:25:18,320
observatory

669
00:25:21,190 --> 00:25:20,240
which went awry and i guess glory did

670
00:25:23,110 --> 00:25:21,200
too

671
00:25:25,669 --> 00:25:23,120
can you talk a little about

672
00:25:29,350 --> 00:25:25,679
how you ensure that this mission will

673
00:25:32,789 --> 00:25:29,360
succeed is it connected to a different

674
00:25:35,750 --> 00:25:34,710
i i think i'll take that if if i

675
00:25:37,750 --> 00:25:35,760
understood you're right you were

676
00:25:40,470 --> 00:25:37,760
referring that to our

677
00:25:42,870 --> 00:25:40,480
previous two launches on the taurus xl

678
00:25:44,950 --> 00:25:42,880
system which uh failed to separate the

679
00:25:47,190 --> 00:25:44,960
fairing this is uh

680
00:25:49,750 --> 00:25:47,200
obviously it is a quite it is a

681
00:25:51,669 --> 00:25:49,760
different system this is uh the delta ii

682
00:25:53,669 --> 00:25:51,679
this is not the taurus

683
00:25:55,750 --> 00:25:53,679
uh there's a lot more redundancy in this

684
00:25:58,230 --> 00:25:55,760
vehicle than than the

685
00:26:00,470 --> 00:25:58,240
taurus has it's a different

686
00:26:03,110 --> 00:26:00,480
price class vehicle too

687
00:26:06,070 --> 00:26:03,120
it has flown a heck of a lot more and as

688
00:26:07,669 --> 00:26:06,080

i said earlier this mission has

689
00:26:10,630 --> 00:26:07,679
with this particular

690
00:26:13,590 --> 00:26:10,640
fairing type has separated and placed

691
00:26:16,549 --> 00:26:13,600
satellites in orbits 57 times before

692
00:26:22,789 --> 00:26:18,789
we have checked to make sure there's no

693
00:26:25,430 --> 00:26:22,799
crossovers between the hardware used

694
00:26:26,310 --> 00:26:25,440
on this vehicle to separate the fairing

695
00:26:29,510 --> 00:26:26,320
um

696
00:26:32,950 --> 00:26:29,520
to the uh taurus xl's system

697
00:26:33,669 --> 00:26:32,960
uh we don't see any intersects um

698
00:26:34,950 --> 00:26:33,679
so

699
00:26:37,909 --> 00:26:34,960
uh

700
00:26:40,630 --> 00:26:37,919
at the end of the game this is a rocket

701
00:26:42,230 --> 00:26:40,640
everything has to function correctly and

702
00:26:44,390 --> 00:26:42,240
it's not just the fairing we're worried

703
00:26:46,310 --> 00:26:44,400
about every every little system on the

704
00:26:47,590 --> 00:26:46,320
rocket has to work together and work

705
00:26:50,630 --> 00:26:47,600
right so

706
00:26:54,149 --> 00:26:50,640
um we we feel confident into going into

707
00:26:55,750 --> 00:26:54,159
this but again it is a rocket

708
00:26:57,430 --> 00:26:55,760
would you like to add any comments to

709
00:26:59,590 --> 00:26:57,440
that i

710
00:27:02,149 --> 00:26:59,600
would second everything that omar said

711
00:27:04,470 --> 00:27:02,159
and i can tell you that after

712
00:27:06,950 --> 00:27:04,480
the first of those two incidents we did

713
00:27:10,470 --> 00:27:06,960

a thorough evaluation to check for any

714
00:27:12,789 --> 00:27:10,480
crossover concerns and we at ula and

715
00:27:14,789 --> 00:27:12,799
nasa both did independent evaluations

716
00:27:16,630 --> 00:27:14,799
and we both concluded that we were safe

717
00:27:18,549 --> 00:27:16,640
to launch and after the first incident

718
00:27:20,470 --> 00:27:18,559
we continued to launch several times i

719
00:27:22,549 --> 00:27:20,480
think we had another three or four adult

720
00:27:24,149 --> 00:27:22,559
two missions that year

721
00:27:26,070 --> 00:27:24,159
when glory

722
00:27:27,990 --> 00:27:26,080
failed we did the same thing we didn't

723
00:27:29,909 --> 00:27:28,000
just rely on the crossover analysis we

724
00:27:32,310 --> 00:27:29,919
did before we went back took a second

725
00:27:34,230 --> 00:27:32,320
look very detailed look to see if the

726
00:27:36,630 --> 00:27:34,240
delta vehicle might be susceptible to

727
00:27:39,029 --> 00:27:36,640
the same type of problem and again nasa

728
00:27:40,710 --> 00:27:39,039
and ula each did independent assessments

729
00:27:42,549 --> 00:27:40,720
and we again concluded that we're safe

730
00:27:44,470 --> 00:27:42,559
to fly

731
00:27:46,549 --> 00:27:44,480
okay we do have another follow-up from

732
00:27:49,430 --> 00:27:46,559
jpl so jpl go ahead with your next

733
00:27:51,909 --> 00:27:49,440
question

734
00:27:53,990 --> 00:27:51,919
thank you very much you mentioned that a

735
00:27:56,310 --> 00:27:54,000
different cost structure could you talk

736
00:27:59,350 --> 00:27:56,320
a little about the cost of the launch

737
00:28:02,070 --> 00:27:59,360
and just to one last question

738
00:28:03,510 --> 00:28:02,080

was the decision made to fly with this

739
00:28:09,669 --> 00:28:03,520
launch system

740
00:28:14,470 --> 00:28:11,990
no the the

741
00:28:16,870 --> 00:28:14,480
the decision to fly this mission on this

742
00:28:17,669 --> 00:28:16,880
type of vehicle was done years ago

743
00:28:19,510 --> 00:28:17,679
um

744
00:28:21,430 --> 00:28:19,520
the the glory and

745
00:28:24,070 --> 00:28:21,440
the glory launch was a couple of months

746
00:28:25,110 --> 00:28:24,080
ago and obviously you've heard here that

747
00:28:27,990 --> 00:28:25,120
this

748
00:28:31,029 --> 00:28:28,000
years

749
00:28:33,590 --> 00:28:31,039
for this type of mission as far as

750
00:28:36,149 --> 00:28:33,600
mission cost

751
00:28:37,909 --> 00:28:36,159
i'm not i'm not free to talk to you

752
00:28:40,630 --> 00:28:37,919
about what the vehicle cost but i can

753
00:28:43,029 --> 00:28:40,640
tell you it was significantly more

754
00:28:44,549 --> 00:28:43,039
than a tourist class vehicle

755
00:28:47,430 --> 00:28:44,559
um

756
00:28:49,110 --> 00:28:47,440
and uh but uh under the foia you're

757
00:28:52,230 --> 00:28:49,120
welcome to ask that question and we can

758
00:28:54,789 --> 00:28:52,240
get you uh those numbers for you

759
00:28:56,710 --> 00:28:54,799
eric i think you want to add on this

760
00:28:59,669 --> 00:28:56,720
programmatically yeah i think the only

761
00:29:03,110 --> 00:28:59,679
other thing i would say is that the um

762
00:29:05,269 --> 00:29:03,120
the driver for the use of a delta ii is

763
00:29:08,310 --> 00:29:05,279

primarily the the mass and and volume

764
00:29:09,909 --> 00:29:08,320
requirements of of the mission um

765
00:29:13,029 --> 00:29:09,919
this mission would not have would not

766
00:29:16,310 --> 00:29:13,039
have flown on a taurus xl but it does

767
00:29:18,870 --> 00:29:16,320
fit on a delta ii and you know given the

768
00:29:20,950 --> 00:29:18,880
superb history of this launch vehicle

769
00:29:21,990 --> 00:29:20,960
we're excited about how it's going to

770
00:29:24,310 --> 00:29:22,000
work

771
00:29:26,310 --> 00:29:24,320
i just want to add in that the decision

772
00:29:28,389 --> 00:29:26,320
to use the launch vehicle was about

773
00:29:30,149 --> 00:29:28,399
eight to nine years ago so it has

774
00:29:33,190 --> 00:29:30,159
nothing to do with

775
00:29:35,350 --> 00:29:33,200
the recent launches so it was all

776
00:29:39,029 --> 00:29:35,360
built in the spacecraft was built in for

777
00:29:45,350 --> 00:29:40,870
all right we'll come back here and take

778
00:29:51,190 --> 00:29:47,909
delta has been such a workhorse for um

779
00:29:53,029 --> 00:29:51,200
nasa is there any future to continue the

780
00:29:55,990 --> 00:29:53,039
program and this would be for both vern

781
00:29:59,350 --> 00:29:56,000
and omar um since there are just three

782
00:30:03,029 --> 00:30:00,549
go ahead

783
00:30:05,990 --> 00:30:03,039
okay you're right there are three delta

784
00:30:07,110 --> 00:30:06,000
twos left on our nasa contract right now

785
00:30:09,510 --> 00:30:07,120
we have

786
00:30:11,669 --> 00:30:09,520
five left in inventory and we're talking

787
00:30:13,350 --> 00:30:11,679
to a number of potential customers nasa

788
00:30:14,870 --> 00:30:13,360

included about the possible use of those

789
00:30:17,269 --> 00:30:14,880
in the future

790
00:30:18,789 --> 00:30:17,279
and uh from ula's perspective it's our

791
00:30:20,710 --> 00:30:18,799
intention to continue to serve the

792
00:30:22,710 --> 00:30:20,720
medium-class market in which delta ii

793
00:30:24,389 --> 00:30:22,720
has served for years

794
00:30:26,710 --> 00:30:24,399
that market does not have a whole lot of

795
00:30:28,870 --> 00:30:26,720
opportunities right now

796
00:30:30,310 --> 00:30:28,880
so we see the five delta twos that we

797
00:30:32,470 --> 00:30:30,320
have remaining in inventory as

798
00:30:33,830 --> 00:30:32,480
sufficient for the near term to satisfy

799
00:30:36,149 --> 00:30:33,840
that market

800
00:30:38,070 --> 00:30:36,159
so we're focusing on that right now and

801
00:30:39,510 --> 00:30:38,080
uh we'll keep our options open for the

802
00:30:41,110 --> 00:30:39,520
future as we continue to serve that

803
00:30:44,310 --> 00:30:41,120
market

804
00:30:46,549 --> 00:30:44,320
omar anything to add on that uh no i i

805
00:30:48,789 --> 00:30:46,559
think vern covered it there is the uh

806
00:30:50,789 --> 00:30:48,799
the two remaining after aquarius for for

807
00:30:52,950 --> 00:30:50,799
nasa grail on the

808
00:30:53,750 --> 00:30:52,960
east coast and npp later on this year

809
00:30:55,430 --> 00:30:53,760
here

810
00:30:56,710 --> 00:30:55,440
we currently don't have a vehicle to be

811
00:30:59,110 --> 00:30:56,720
able to

812
00:31:00,149 --> 00:30:59,120
buy the delta ii but there is an on-ramp

813
00:31:03,350 --> 00:31:00,159

coming up

814
00:31:07,350 --> 00:31:03,360
during the summer where we'll be able to

815
00:31:09,110 --> 00:31:07,360
if our customer desires to to buy some

816
00:31:12,389 --> 00:31:09,120
delta twos they'll have the opportunity

817
00:31:17,509 --> 00:31:14,950
any further questions

818
00:31:18,950 --> 00:31:17,519
no other questions over here

819
00:31:20,549 --> 00:31:18,960
all right in that event that will

820
00:31:23,669 --> 00:31:20,559
conclude oh we have a question back

821
00:31:25,750 --> 00:31:23,679
there okay very good

822
00:31:27,750 --> 00:31:25,760
hello my name is victoria i'm with kcoy

823
00:31:30,070 --> 00:31:27,760
in santa maria what is the the

824
00:31:32,149 --> 00:31:30,080
significance of of being able to test

825
00:31:33,830 --> 00:31:32,159
the solidity of the ocean and if it's

826
00:31:35,509 --> 00:31:33,840
going to take 25 days what kind of

827
00:31:37,430 --> 00:31:35,519
information are you expecting to get

828
00:31:40,230 --> 00:31:37,440
after that time period

829
00:31:41,750 --> 00:31:40,240
i can take that um eric

830
00:31:44,149 --> 00:31:41,760
as you know this is this mission is

831
00:31:45,669 --> 00:31:44,159
about measuring how salty the ocean is

832
00:31:47,509 --> 00:31:45,679
from space

833
00:31:49,909 --> 00:31:47,519
and it's one of the key missing

834
00:31:51,269 --> 00:31:49,919
parameters that we haven't studied about

835
00:31:53,029 --> 00:31:51,279
this world

836
00:31:56,470 --> 00:31:53,039
we look at oceans and we know they're

837
00:31:58,710 --> 00:31:56,480
salty and we know that salt is a mineral

838
00:32:00,710 --> 00:31:58,720

content that moves heat

839
00:32:03,269 --> 00:32:00,720
around the world

840
00:32:05,669 --> 00:32:03,279
so by measuring the density

841
00:32:07,190 --> 00:32:05,679
of salt in the ocean and its movement

842
00:32:09,990 --> 00:32:07,200
and circular and the water cycle and

843
00:32:12,149 --> 00:32:10,000
circulation will be knowing more about

844
00:32:13,750 --> 00:32:12,159
how climate is linked with this

845
00:32:15,190 --> 00:32:13,760
circulation

846
00:32:18,310 --> 00:32:15,200
so in effect

847
00:32:20,789 --> 00:32:18,320
what would do is it would teach us the

848
00:32:24,070 --> 00:32:20,799
understanding of climate and what

849
00:32:26,070 --> 00:32:24,080
effects it has such as el nino la nina

850
00:32:27,990 --> 00:32:26,080
any any other new phenomena that we

851
00:32:29,990 --> 00:32:28,000
might be able to discover this is an

852
00:32:33,830 --> 00:32:30,000
exploration mission and that's what we

853
00:32:37,990 --> 00:32:35,750
yes question over here on the right

854
00:32:40,710 --> 00:32:38,000
hello my name is melissa

855
00:32:42,549 --> 00:32:40,720
with the news agency of argentina

856
00:32:44,470 --> 00:32:42,559
i would like to know your comments uh

857
00:32:46,149 --> 00:32:44,480
about this joint experience with

858
00:32:47,509 --> 00:32:46,159
argentina if

859
00:32:49,990 --> 00:32:47,519
someone of you can make the comments

860
00:32:52,230 --> 00:32:50,000
please i'll take the question um

861
00:32:55,269 --> 00:32:52,240
yeah i think it has been a

862
00:32:57,110 --> 00:32:55,279
rewarding experience for both

863
00:32:57,990 --> 00:32:57,120

nasa and konai

864
00:33:01,269 --> 00:32:58,000
we've

865
00:33:02,230 --> 00:33:01,279
had a great working relationship

866
00:33:03,509 --> 00:33:02,240
we

867
00:33:05,590 --> 00:33:03,519
have

868
00:33:07,590 --> 00:33:05,600
experienced

869
00:33:09,990 --> 00:33:07,600
as i mentioned it's a complex mission

870
00:33:12,230 --> 00:33:10,000
it's taken a lot of coordination and

871
00:33:13,190 --> 00:33:12,240
really working closely both agencies

872
00:33:15,029 --> 00:33:13,200
together

873
00:33:16,870 --> 00:33:15,039
and i think

874
00:33:19,430 --> 00:33:16,880
both agencies are better off for having

875
00:33:21,350 --> 00:33:19,440
partnered together on this mission

876
00:33:23,669 --> 00:33:21,360
you want to comment on the further

877
00:33:24,789 --> 00:33:23,679
obviously i will and

878
00:33:26,950 --> 00:33:24,799
i have

879
00:33:28,950 --> 00:33:26,960
intimately dealt with

880
00:33:31,029 --> 00:33:28,960
our south american partners not only

881
00:33:32,789 --> 00:33:31,039
argentines but also brazilians and our

882
00:33:34,710 --> 00:33:32,799
european counterparts

883
00:33:38,230 --> 00:33:34,720
and i could not

884
00:33:41,029 --> 00:33:38,240
believe another group that is so caring

885
00:33:44,149 --> 00:33:41,039
so dedicated that this group that i have

886
00:33:46,950 --> 00:33:44,159
been working with the last 10 years

887
00:33:49,350 --> 00:33:46,960
they do not let go things if things are

888
00:33:51,909 --> 00:33:49,360

left behind they pick it up and together

889
00:33:54,470 --> 00:33:51,919
with us make it successful that's what

890
00:33:56,389 --> 00:33:54,480
it counts and the proof is today that we

891
00:33:58,389 --> 00:33:56,399
stand on a launch pad getting ready to

892
00:34:01,029 --> 00:33:58,399
get launched so you have exceptionally

893
00:34:04,789 --> 00:34:01,039
talented people down in argentina and

894
00:34:09,990 --> 00:34:07,269
an additional questions in the

895
00:34:13,190 --> 00:34:10,000
back over here

896
00:34:14,629 --> 00:34:13,200
all right that will conclude our

897
00:34:16,629 --> 00:34:14,639
pre-launch news conference we're going

898
00:34:18,470 --> 00:34:16,639
to pause just long enough to change the

899
00:34:20,069 --> 00:34:18,480
participants on the diocese and then

900
00:34:22,389 --> 00:34:20,079
we'll be right back with the aquarius