1
00:00:06,869 --> 00:00:05,349
good morning everybody and as hundreds

2
00:00:09,030 --> 00:00:06,879
of thousands of people are gathering

3
00:00:11,350 --> 00:00:09,040
along florida's space coast anticipating

4
00:00:12,310 --> 00:00:11,360
the launch of space shuttle atlantis we

5
00:00:14,470 --> 00:00:12,320
thought this would be a great

6
00:00:17,029 --> 00:00:14,480
opportunity to talk to you about what's

7
00:00:18,950 --> 00:00:17,039
next in nasa human space flight so we've

8
00:00:20,550 --> 00:00:18,960
scheduled this briefing today and we

9
00:00:22,470 --> 00:00:20,560
have a panel here that will be

10
00:00:24,950 --> 00:00:22,480
addressing that i'd like to introduce

11
00:00:28,870 --> 00:00:24,960
the folks up here at this time nasa

12
00:00:30,550 --> 00:00:28,880
deputy administrator lori garver

13
00:00:32,790 --> 00:00:30,560

associate administrator for the

14
00:00:34,870 --> 00:00:32,800
exploration systems mission directorate

15
00:00:36,950 --> 00:00:34,880
doug cook

16
00:00:39,590 --> 00:00:36,960
and international space station program

17
00:00:41,110 --> 00:00:39,600
manager mike saffordini

18
00:00:42,310 --> 00:00:41,120
and we'll begin with opening comments

19
00:00:44,709 --> 00:00:42,320
and then we'll be happy to take your

20
00:00:47,270 --> 00:00:44,719
questions garver thank you mike good

21
00:00:49,670 --> 00:00:47,280
morning it is a pleasure to be here on

22
00:00:52,549 --> 00:00:49,680
the cusp of this great milestone for

23
00:00:55,110 --> 00:00:52,559
nasa this country and the world we're so

24
00:00:57,350 --> 00:00:55,120
proud of the men and women of this

25
00:00:59,189 --> 00:00:57,360
workforce the entire government and

26
00:01:00,950 --> 00:00:59,199
industry team that has

27
00:01:03,270 --> 00:01:00,960
proudly flown out the space shuttle

28
00:01:04,310 --> 00:01:03,280
program over the past 30 years for this

29
00:01:07,190 --> 00:01:04,320
nation

30
00:01:10,310 --> 00:01:07,200
space shuttle has provided unbelievable

31
00:01:12,550 --> 00:01:10,320
benefit and return on the investment of

32
00:01:16,550 --> 00:01:12,560
the american taxpayer

33
00:01:19,990 --> 00:01:16,560
she has launched numerous spacecraft to

34
00:01:21,350 --> 00:01:20,000
low-earth orbit and beyond spacecraft to

35
00:01:24,390 --> 00:01:21,360
outer planets

36
00:01:26,870 --> 00:01:24,400
spacecraft that have helped communicate

37
00:01:29,429 --> 00:01:26,880
with the ground so that our service men

38
00:01:33,109 --> 00:01:29,439

and women overseas have been kept out of

39
00:01:36,230 --> 00:01:33,119
harm's way we have been able to launch

40
00:01:38,310 --> 00:01:36,240
for the last 30 something flights the

41
00:01:40,710 --> 00:01:38,320
space station program the international

42
00:01:43,270 --> 00:01:40,720
space station program is a huge part of

43
00:01:45,670 --> 00:01:43,280
our future and as administrator

44
00:01:47,990 --> 00:01:45,680
bolden said last week

45
00:01:48,710 --> 00:01:48,000
human space flight is not ending with

46
00:01:53,510 --> 00:01:48,720
the

47
00:01:54,789 --> 00:01:53,520
indeed american leadership in space will

48
00:01:57,109 --> 00:01:54,799
continue

49
00:01:59,350 --> 00:01:57,119
for at least the next half century we

50
00:02:01,350 --> 00:01:59,360
have been able to extend the space

51
00:02:03,670 --> 00:02:01,360
station program

52
00:02:05,830 --> 00:02:03,680
for at least another

53
00:02:08,630 --> 00:02:05,840
five years so that's a total of 10 years

54
00:02:12,309 --> 00:02:08,640
now till 2020 as we have announced we

55
00:02:15,110 --> 00:02:12,319
are working to reduce the gap in space

56
00:02:17,589 --> 00:02:15,120
flight for uh cargo and crew to the

57
00:02:20,550 --> 00:02:17,599
international space station from right

58
00:02:24,390 --> 00:02:20,560
here in florida and we

59
00:02:26,949 --> 00:02:24,400
in americans are so proud of our history

60
00:02:29,430 --> 00:02:26,959
of space exploration and we believe we

61
00:02:32,790 --> 00:02:29,440
will be going further

62
00:02:35,750 --> 00:02:32,800
faster as we develop the next generation

63
00:02:37,190 --> 00:02:35,760

of spacecraft we are working with our

64
00:02:38,710 --> 00:02:37,200
industry team

65
00:02:41,430 --> 00:02:38,720
on the

66
00:02:42,630 --> 00:02:41,440
mpcv the multi-purpose crew vehicle

67
00:02:44,710 --> 00:02:42,640
orion

68
00:02:47,910 --> 00:02:44,720
we are working on the space launch

69
00:02:50,390 --> 00:02:47,920
system we will be announcing soon the

70
00:02:53,190 --> 00:02:50,400
specific design for that launch system

71
00:02:55,430 --> 00:02:53,200
and once again we in this nation have

72
00:02:57,670 --> 00:02:55,440
the opportunity to raise the bar great

73
00:03:00,070 --> 00:02:57,680
nations explore and we are going to be

74
00:03:02,630 --> 00:03:00,080
demonstrating what human beings can do

75
00:03:04,869 --> 00:03:02,640
as we are challenged and as we work to

76
00:03:07,350 --> 00:03:04,879
inspire the nation in the world

77
00:03:09,509 --> 00:03:07,360
so we have then given a roadmap by

78
00:03:12,070 --> 00:03:09,519
president obama and a charge

79
00:03:14,390 --> 00:03:12,080
to reach those new heights and reveal

80
00:03:17,430 --> 00:03:14,400
the unknown and leave future generations

81
00:03:19,430 --> 00:03:17,440
with more capability than we have today

82
00:03:21,190 --> 00:03:19,440
we've set our sights farther on

83
00:03:23,670 --> 00:03:21,200
destinations in the solar system that

84
00:03:25,670 --> 00:03:23,680
will open up not only

85
00:03:28,309 --> 00:03:25,680
new markets here closer to earth with

86
00:03:30,789 --> 00:03:28,319
reducing the costs and streamlining the

87
00:03:34,390 --> 00:03:30,799
operations of our space transportation

88
00:03:36,949 --> 00:03:34,400

systems but going beyond low earth orbit

89
00:03:40,470 --> 00:03:36,959
first to an asteroid

90
00:03:42,710 --> 00:03:40,480
by in around 2025 and then on to mars in

91
00:03:45,750 --> 00:03:42,720
the mid 2030s

92
00:03:47,670 --> 00:03:45,760
we will be maximizing the use of the

93
00:03:50,070 --> 00:03:47,680
international space station this is

94
00:03:52,229 --> 00:03:50,080
really our toe hold for the future we

95
00:03:54,550 --> 00:03:52,239
have been with our international

96
00:03:56,550 --> 00:03:54,560
partners building the space station as

97
00:03:58,070 --> 00:03:56,560
the centerpiece of our human space

98
00:04:01,270 --> 00:03:58,080
flight activities

99
00:04:03,910 --> 00:04:01,280
for the next decade nasa science has

100
00:04:06,550 --> 00:04:03,920
incredible things coming up

101
00:04:09,110 --> 00:04:06,560
just in the next next six months we'll

102
00:04:10,869 --> 00:04:09,120
be launching earth science missions

103
00:04:13,190 --> 00:04:10,879
we will be going

104
00:04:14,869 --> 00:04:13,200
to mars was just able to see the mard

105
00:04:15,670 --> 00:04:14,879
science lab which is already here at the

106
00:04:17,110 --> 00:04:15,680
cape

107
00:04:19,670 --> 00:04:17,120
as well as going to the moon with our

108
00:04:22,150 --> 00:04:19,680
grail mission and to head for jupiter

109
00:04:24,310 --> 00:04:22,160
with juno all these missions already

110
00:04:26,469 --> 00:04:24,320
here and ready to launch this year there

111
00:04:28,310 --> 00:04:26,479
are many many more missions coming up to

112
00:04:30,469 --> 00:04:28,320
improve the understanding not only of

113
00:04:32,950 --> 00:04:30,479

our home planet but

114
00:04:34,870 --> 00:04:32,960
the solar system and beyond

115
00:04:37,350 --> 00:04:34,880
we're investing in technologies that

116
00:04:39,830 --> 00:04:37,360
will make our rockets go farther and

117
00:04:42,310 --> 00:04:39,840
faster so that we can continue to build

118
00:04:44,550 --> 00:04:42,320
on uh the capabilities that nasa has

119
00:04:45,749 --> 00:04:44,560
invested in over our first 50 years of

120
00:04:49,510 --> 00:04:45,759
history

121
00:04:52,070 --> 00:04:49,520
continue our cutting edge aeronautics

122
00:04:54,790 --> 00:04:52,080
research and improve tomorrow's aircraft

123
00:04:57,350 --> 00:04:54,800
and systems that we all depend on to get

124
00:04:59,270 --> 00:04:57,360
from place to place on this planet

125
00:05:01,909 --> 00:04:59,280
so president obama has given us a

126
00:05:04,629 --> 00:05:01,919
mission with a capital m to focus on

127
00:05:07,189 --> 00:05:04,639
again the big picture of exploration and

128
00:05:08,790 --> 00:05:07,199
the cru crucial research development

129
00:05:11,350 --> 00:05:08,800
that we need to move beyond low earth

130
00:05:13,909 --> 00:05:11,360
orbit he's charged us with carrying out

131
00:05:15,670 --> 00:05:13,919
these inspiring missions as only nasa

132
00:05:17,590 --> 00:05:15,680
can

133
00:05:20,870 --> 00:05:17,600
going places we've never been we know

134
00:05:24,070 --> 00:05:20,880
that asteroids have had an impact on our

135
00:05:26,150 --> 00:05:24,080
planet's past and undoubtedly can affect

136
00:05:28,550 --> 00:05:26,160
our future we need to learn more about

137
00:05:30,550 --> 00:05:28,560
them and we also need to go uh that

138
00:05:32,550 --> 00:05:30,560

farther distance on our way to that

139
00:05:34,870 --> 00:05:32,560
destination of

140
00:05:37,909 --> 00:05:34,880
mars we're continuing the work already

141
00:05:40,710 --> 00:05:37,919
done as i mentioned on the orion vehicle

142
00:05:42,390 --> 00:05:40,720
for the multi-purpose crew vehicle the

143
00:05:44,230 --> 00:05:42,400
next generation capsule that's going to

144
00:05:46,469 --> 00:05:44,240
take our astronauts

145
00:05:48,710 --> 00:05:46,479
to those far destinations

146
00:05:51,189 --> 00:05:48,720
as we finalize consideration of the

147
00:05:53,270 --> 00:05:51,199
decisions on our space launch system of

148
00:05:55,110 --> 00:05:53,280
that heavy rocket that will complement

149
00:05:56,950 --> 00:05:55,120
and carry the capsule

150
00:05:59,189 --> 00:05:56,960
we do plan to make that announcement of

151
00:06:01,350 --> 00:05:59,199
our decision in the near future

152
00:06:03,270 --> 00:06:01,360
while we look at the investments that we

153
00:06:06,469 --> 00:06:03,280
make and make sure that that

154
00:06:08,629 --> 00:06:06,479
we can have the most affordable and

155
00:06:10,710 --> 00:06:08,639
sustainable program on behalf of the

156
00:06:12,390 --> 00:06:10,720
american people so here at the kennedy

157
00:06:15,270 --> 00:06:12,400
space center we'll be upgrading our

158
00:06:17,430 --> 00:06:15,280
capabilities as nasa's premier launch

159
00:06:20,790 --> 00:06:17,440
port and bring in more users to take

160
00:06:21,590 --> 00:06:20,800
advantage of this national resource

161
00:06:23,110 --> 00:06:21,600
so

162
00:06:26,150 --> 00:06:23,120
the retirement of the space shuttle

163
00:06:28,469 --> 00:06:26,160

program again not an end it's the start

164
00:06:30,710 --> 00:06:28,479
of the next chapter in america and in

165
00:06:32,950 --> 00:06:30,720
space exploration as the united states

166
00:06:34,390 --> 00:06:32,960
continues to lead the world we truly

167
00:06:37,670 --> 00:06:34,400
truly salute

168
00:06:40,550 --> 00:06:37,680
the workforce of this amazing

169
00:06:42,950 --> 00:06:40,560
space shuttle program it is a

170
00:06:44,390 --> 00:06:42,960
wonderful accomplishments that have been

171
00:06:47,110 --> 00:06:44,400
made that we will be standing on the

172
00:06:49,270 --> 00:06:47,120
shoulders of as we look forward

173
00:06:51,749 --> 00:06:49,280
to continue to bring

174
00:06:54,469 --> 00:06:51,759
america that exploring

175
00:06:59,270 --> 00:06:54,479
frontier of the future that nasa has

176
00:07:03,670 --> 00:07:00,309
okay

177
00:07:05,430 --> 00:07:03,680
doug yes good morning uh we've come to

178
00:07:07,510 --> 00:07:05,440
an important point in the history of

179
00:07:09,990 --> 00:07:07,520
human space flight we obviously are

180
00:07:11,670 --> 00:07:10,000
reaching the end of operations of the

181
00:07:13,830 --> 00:07:11,680
longest operating human space flight

182
00:07:16,230 --> 00:07:13,840
system that our country has built at the

183
00:07:17,589 --> 00:07:16,240
same time we are embarking on a new era

184
00:07:19,670 --> 00:07:17,599
in space flight where we turn over

185
00:07:20,550 --> 00:07:19,680
routine transportation to and from earth

186
00:07:23,670 --> 00:07:20,560
orbit

187
00:07:25,670 --> 00:07:23,680
to companies while we at nasa

188
00:07:27,749 --> 00:07:25,680

focus and set our sights on preparing to

189
00:07:30,070 --> 00:07:27,759
send people once again to explore beyond

190
00:07:31,029 --> 00:07:30,080
earth orbit in my mind space shuttle is

191
00:07:33,510 --> 00:07:31,039
still

192
00:07:36,309 --> 00:07:33,520
a modern wonder of the engineering world

193
00:07:37,749 --> 00:07:36,319
the machines the people who prepare them

194
00:07:39,909 --> 00:07:37,759
and those who fly and operate them have

195
00:07:41,749 --> 00:07:39,919
done a magnificent job and we will see

196
00:07:42,830 --> 00:07:41,759
that one more time with the coming

197
00:07:45,430 --> 00:07:42,840
mission of

198
00:07:47,909 --> 00:07:45,440
sts-135 i was a fort i was fortunate

199
00:07:49,430 --> 00:07:47,919
enough to begin my career uh in the

200
00:07:50,710 --> 00:07:49,440
early days of shuttle development in

201
00:07:52,950 --> 00:07:50,720
early 70s

202
00:07:55,430 --> 00:07:52,960
leading the aerodynamic aerodynamic uh

203
00:07:56,710 --> 00:07:55,440
flight test effort

204
00:07:58,790 --> 00:07:56,720
beginning with the approach and landing

205
00:08:02,230 --> 00:07:58,800
test in the in the 70s

206
00:08:05,670 --> 00:08:02,240
as a kid out of college i learned from

207
00:08:06,869 --> 00:08:05,680
legends in in in space human space

208
00:08:09,110 --> 00:08:06,879
flight

209
00:08:11,510 --> 00:08:09,120
management and engineering people like

210
00:08:13,189 --> 00:08:11,520
max vijay and chris

211
00:08:15,990 --> 00:08:13,199
gene kranz

212
00:08:17,110 --> 00:08:16,000
bob thompson aaron cohen glenn lunny and

213
00:08:19,510 --> 00:08:17,120

many others

214
00:08:22,469 --> 00:08:19,520
it was a great opportunity

215
00:08:25,749 --> 00:08:22,479
and it has provided a great opportunity

216
00:08:27,189 --> 00:08:25,759
for me as well as many young engineers

217
00:08:28,469 --> 00:08:27,199
operators

218
00:08:30,550 --> 00:08:28,479
technicians

219
00:08:31,909 --> 00:08:30,560
and astronauts

220
00:08:32,870 --> 00:08:31,919
while we reach the end

221
00:08:35,269 --> 00:08:32,880
as the

222
00:08:37,110 --> 00:08:35,279
shuttle orbiters reach final wheel stop

223
00:08:39,350 --> 00:08:37,120
on their final missions it it's

224
00:08:40,949 --> 00:08:39,360
obviously with mixed feelings

225
00:08:43,110 --> 00:08:40,959
but at the same time it's exciting to

226
00:08:45,269 --> 00:08:43,120
think about what we have in store for us

227
00:08:47,350 --> 00:08:45,279
in a future human space flight we have

228
00:08:49,430 --> 00:08:47,360
initiated the first steps in commercial

229
00:08:51,269 --> 00:08:49,440
space flight developments

230
00:08:52,389 --> 00:08:51,279
our commercial cargo program team

231
00:08:53,750 --> 00:08:52,399
members

232
00:08:56,070 --> 00:08:53,760
are making progress in their

233
00:08:58,470 --> 00:08:56,080
developments spacex

234
00:09:01,030 --> 00:08:58,480
falcon 9 has launched twice

235
00:09:03,750 --> 00:09:01,040
and are making progress we we anticipate

236
00:09:05,110 --> 00:09:03,760
another flight in the fall

237
00:09:06,230 --> 00:09:05,120
orbital

238
00:09:07,509 --> 00:09:06,240

sciences

239
00:09:09,350 --> 00:09:07,519
has

240
00:09:11,990 --> 00:09:09,360
continued to make progress in its

241
00:09:13,590 --> 00:09:12,000
development and we anticipate a flight

242
00:09:14,790 --> 00:09:13,600
uh in the coming months with them as

243
00:09:17,030 --> 00:09:14,800
well

244
00:09:18,230 --> 00:09:17,040
our commercial crew program

245
00:09:19,430 --> 00:09:18,240
led by

246
00:09:21,269 --> 00:09:19,440
ksc

247
00:09:22,710 --> 00:09:21,279
is in its second phase of space act

248
00:09:26,150 --> 00:09:22,720
agreements

249
00:09:27,509 --> 00:09:26,160
and companies uh involved are are making

250
00:09:29,829 --> 00:09:27,519
their uh

251
00:09:30,790 --> 00:09:29,839
their milestones already on in that

252
00:09:34,310 --> 00:09:30,800
effort

253
00:09:37,350 --> 00:09:34,320
and uh those companies are boeing spacex

254
00:09:40,150 --> 00:09:37,360
sierra nevada corporation blue origin

255
00:09:41,350 --> 00:09:40,160
and they're all making progress on those

256
00:09:43,269 --> 00:09:41,360
recently

257
00:09:45,269 --> 00:09:43,279
awarded space act agreements at the same

258
00:09:47,590 --> 00:09:45,279
time our team here at ksc

259
00:09:49,350 --> 00:09:47,600
is putting together

260
00:09:50,870 --> 00:09:49,360
what's needed to do the next round of

261
00:09:52,310 --> 00:09:50,880
competitions

262
00:09:54,470 --> 00:09:52,320
now as we look

263
00:09:55,910 --> 00:09:54,480

beyond earth orbit we are shaping the

264
00:09:59,350 --> 00:09:55,920
path forward for

265
00:10:01,590 --> 00:09:59,360
the multi-purpose crew vehicle orion and

266
00:10:03,190 --> 00:10:01,600
the heavy lift space launch system

267
00:10:06,150 --> 00:10:03,200
most of you are aware the progress that

268
00:10:07,190 --> 00:10:06,160
has been made on on the crew vehicle

269
00:10:09,750 --> 00:10:07,200
and

270
00:10:12,870 --> 00:10:09,760
in fact we i think you can see pad abort

271
00:10:14,389 --> 00:10:12,880
one hardware here

272
00:10:16,630 --> 00:10:14,399
and we are continuing to work that in

273
00:10:17,990 --> 00:10:16,640
earnest and making progress on it

274
00:10:19,350 --> 00:10:18,000
we are continuing to work through the

275
00:10:20,389 --> 00:10:19,360
details

276
00:10:23,030 --> 00:10:20,399
um

277
00:10:24,870 --> 00:10:23,040
on on moving from aries one

278
00:10:26,790 --> 00:10:24,880
work under the constellation program to

279
00:10:28,230 --> 00:10:26,800
a new space launch system

280
00:10:29,269 --> 00:10:28,240
uh which will have the performance

281
00:10:31,990 --> 00:10:29,279
needed to

282
00:10:33,509 --> 00:10:32,000
for people to travel beyond earth orbit

283
00:10:36,069 --> 00:10:33,519
and although we are not a point to

284
00:10:38,069 --> 00:10:36,079
discuss details today be assured that we

285
00:10:39,750 --> 00:10:38,079
are actively yet carefully working

286
00:10:40,949 --> 00:10:39,760
through those steps to make sure we are

287
00:10:43,190 --> 00:10:40,959
providing

288
00:10:45,829 --> 00:10:43,200

a well thought out strategy that will be

289
00:10:49,350 --> 00:10:45,839
the best approach for many years to come

290
00:10:51,750 --> 00:10:49,360
these vehicles the mpcv and sls are the

291
00:10:54,389 --> 00:10:51,760
first critically important

292
00:10:56,389 --> 00:10:54,399
capabilities that we need in development

293
00:10:58,310 --> 00:10:56,399
for

294
00:10:59,990 --> 00:10:58,320
exploration missions to discover things

295
00:11:02,710 --> 00:11:00,000
we can't even imagine about other

296
00:11:04,150 --> 00:11:02,720
destinations in our solar system they'll

297
00:11:07,190 --> 00:11:04,160
become the workhorses for these

298
00:11:09,990 --> 00:11:07,200
exploration missions in the future

299
00:11:13,190 --> 00:11:10,000
and we'll be able to achieve

300
00:11:16,389 --> 00:11:13,200
going to the conceivable possible

301
00:11:18,870 --> 00:11:16,399
destinations in our near future

302
00:11:20,790 --> 00:11:18,880
we also begin we will also continue to

303
00:11:22,710 --> 00:11:20,800
learn about

304
00:11:24,630 --> 00:11:22,720
living and sustaining health for our for

305
00:11:26,230 --> 00:11:24,640
our astronauts for long periods in space

306
00:11:28,790 --> 00:11:26,240
through our human research program and

307
00:11:32,389 --> 00:11:28,800
testing on international space station

308
00:11:35,430 --> 00:11:32,399
we'll be developing in-house at nasa

309
00:11:38,150 --> 00:11:35,440
additional concepts and and prototypes

310
00:11:39,430 --> 00:11:38,160
of space systems that will need to

311
00:11:42,550 --> 00:11:39,440
augment

312
00:11:45,350 --> 00:11:42,560
the sls and mpcv on these missions of

313
00:11:47,430 --> 00:11:45,360

exploration beyond earth orbit we also

314
00:11:49,509 --> 00:11:47,440
need to invest in technology for these

315
00:11:52,629 --> 00:11:49,519
long-term missions there are things that

316
00:11:55,590 --> 00:11:52,639
we know of that we need to invest in

317
00:11:56,870 --> 00:11:55,600
that will be needed for

318
00:11:59,030 --> 00:11:56,880
for the kind of missions that we're

319
00:12:00,870 --> 00:11:59,040
talking about in the future so those are

320
00:12:02,389 --> 00:12:00,880
important that that investment is

321
00:12:04,629 --> 00:12:02,399
important as well as things like

322
00:12:06,790 --> 00:12:04,639
advanced in-space propulsion advanced

323
00:12:09,509 --> 00:12:06,800
life support systems in-situ resource

324
00:12:10,870 --> 00:12:09,519
utilization and a number of others we

325
00:12:12,870 --> 00:12:10,880
also need

326
00:12:15,910 --> 00:12:12,880
research and

327
00:12:17,509 --> 00:12:15,920
in radiation effects on on people so

328
00:12:19,110 --> 00:12:17,519
those are all important investments as

329
00:12:20,629 --> 00:12:19,120
well that we'll we'll need for our

330
00:12:22,870 --> 00:12:20,639
future

331
00:12:24,470 --> 00:12:22,880
we will be applying

332
00:12:26,389 --> 00:12:24,480
what we have learned over the past few

333
00:12:28,150 --> 00:12:26,399
years on aries and orion

334
00:12:31,269 --> 00:12:28,160
uh and the tests that we've conducted

335
00:12:33,350 --> 00:12:31,279
like ares 1x here at ksc and pad abort 1

336
00:12:35,670 --> 00:12:33,360
and development motor tests that we've

337
00:12:37,030 --> 00:12:35,680
done other ground tests that have added

338
00:12:39,110 --> 00:12:37,040

to our understanding of these critical

339
00:12:41,509 --> 00:12:39,120
systems and reduce risk

340
00:12:43,829 --> 00:12:41,519
in terms of our ability to move forward

341
00:12:45,110 --> 00:12:43,839
on in these new programs

342
00:12:47,030 --> 00:12:45,120
we're also

343
00:12:49,509 --> 00:12:47,040
learning to build healthy programs and

344
00:12:51,590 --> 00:12:49,519
modern robust designs by more working

345
00:12:52,790 --> 00:12:51,600
more efficiently with our industry

346
00:12:55,190 --> 00:12:52,800
partners

347
00:12:56,710 --> 00:12:55,200
we have a talent talented and

348
00:12:58,949 --> 00:12:56,720
experienced team that is working through

349
00:13:01,030 --> 00:12:58,959
the necessary near-term

350
00:13:02,870 --> 00:13:01,040
steps to ensure a bright future for

351
00:13:04,150 --> 00:13:02,880
human space exploration

352
00:13:05,670 --> 00:13:04,160
this is a future that i've always

353
00:13:09,509 --> 00:13:05,680
dreamed of and i look forward to seeing

354
00:13:10,389 --> 00:13:09,519
it successfully move forward thank you

355
00:13:11,750 --> 00:13:10,399
mike

356
00:13:14,470 --> 00:13:11,760
well good morning

357
00:13:17,829 --> 00:13:14,480
as you have all followed us for for uh

358
00:13:20,870 --> 00:13:17,839
several years as we've assembled station

359
00:13:23,030 --> 00:13:20,880
you've seen us focus on the the

360
00:13:24,550 --> 00:13:23,040
process of assembly of which the shuttle

361
00:13:26,629 --> 00:13:24,560
of course has played

362
00:13:29,350 --> 00:13:26,639
uh the significant role of bringing each

363
00:13:31,110 --> 00:13:29,360

of the elements to iss and and and her

364
00:13:32,150 --> 00:13:31,120
crew helping us put the components

365
00:13:34,389 --> 00:13:32,160
together

366
00:13:37,110 --> 00:13:34,399
and during that process uh we did do

367
00:13:39,350 --> 00:13:37,120
research on board iss uh but it was

368
00:13:41,350 --> 00:13:39,360
limited and and we always gave

369
00:13:43,030 --> 00:13:41,360
uh the priority to the assembly phase

370
00:13:44,710 --> 00:13:43,040
because it was uh you know cr it was a

371
00:13:47,670 --> 00:13:44,720
critical part of the program at that

372
00:13:49,910 --> 00:13:47,680
point so what this shuttle flight

373
00:13:51,509 --> 00:13:49,920
means to the iss program is it is the

374
00:13:53,990 --> 00:13:51,519
turning point it's where we transition

375
00:13:56,150 --> 00:13:54,000
our thought process from one of assembly

376
00:13:57,430 --> 00:13:56,160
to one of utilization the significance

377
00:13:59,590 --> 00:13:57,440
of that is

378
00:14:01,110 --> 00:13:59,600
now we focus on on

379
00:14:03,829 --> 00:14:01,120
the utilization

380
00:14:06,230 --> 00:14:03,839
piece of it and providing them a certain

381
00:14:08,629 --> 00:14:06,240
allocation of time and resources and

382
00:14:10,389 --> 00:14:08,639
then we will we will maintain the iss

383
00:14:11,509 --> 00:14:10,399
and do the repairs necessary along the

384
00:14:13,509 --> 00:14:11,519
way

385
00:14:15,189 --> 00:14:13,519
in the time that's left and and during

386
00:14:17,350 --> 00:14:15,199
assembly it was exactly opposite we

387
00:14:19,350 --> 00:14:17,360
would do the work we had to to assemble

388
00:14:21,030 --> 00:14:19,360

the vehicle and operate the vehicle and

389
00:14:22,389 --> 00:14:21,040
then what was left we gave to the

390
00:14:24,790 --> 00:14:22,399
research community and this is a

391
00:14:27,750 --> 00:14:24,800
significant step we're gonna we're gonna

392
00:14:29,910 --> 00:14:27,760
go up to about an average of 35 hours a

393
00:14:32,629 --> 00:14:29,920
week as long as we're at a three-person

394
00:14:34,629 --> 00:14:32,639
crew and when our commercial crew folks

395
00:14:36,790 --> 00:14:34,639
arrive and and we're able to step up to

396
00:14:39,110 --> 00:14:36,800
four crew members then we'll double that

397
00:14:40,550 --> 00:14:39,120
time available for research on board iss

398
00:14:42,150 --> 00:14:40,560
here in the future

399
00:14:44,310 --> 00:14:42,160
and uh and the rest of the work we do to

400
00:14:46,629 --> 00:14:44,320
maintain the vehicle we'll do in the

401
00:14:48,870 --> 00:14:46,639
remaining time that's left with the crew

402
00:14:50,550 --> 00:14:48,880
and that's the way we actually have been

403
00:14:53,350 --> 00:14:50,560
managing ourselves

404
00:14:54,470 --> 00:14:53,360
over the last year but with the with the

405
00:14:58,790 --> 00:14:54,480
shuttle

406
00:15:00,710 --> 00:14:58,800
actually obligate the complete 35 hours

407
00:15:02,629 --> 00:15:00,720
to the research community

408
00:15:04,710 --> 00:15:02,639
and that's an important part because

409
00:15:06,310 --> 00:15:04,720
because the iss we didn't build the iss

410
00:15:09,030 --> 00:15:06,320
just to build although we learned a lot

411
00:15:11,110 --> 00:15:09,040
from that that facet we built it to to

412
00:15:11,910 --> 00:15:11,120
utilize it and and on board you'll see

413
00:15:13,269 --> 00:15:11,920

us

414
00:15:15,990 --> 00:15:13,279
you've heard a lot of talk about the

415
00:15:18,389 --> 00:15:16,000
research and that will continue uh we

416
00:15:20,949 --> 00:15:18,399
have wonderful facilities inside it is a

417
00:15:22,949 --> 00:15:20,959
laboratory uh much like a laboratory on

418
00:15:24,790 --> 00:15:22,959
the ground we have minus 80 degree

419
00:15:26,870 --> 00:15:24,800
freezers we have glove boxes we have

420
00:15:28,150 --> 00:15:26,880
fluids racks and combustion racks

421
00:15:30,389 --> 00:15:28,160
specifically

422
00:15:32,949 --> 00:15:30,399
to study fluids and and

423
00:15:36,310 --> 00:15:32,959
and combustion we have multi-purpose

424
00:15:38,710 --> 00:15:36,320
racks we have human research racks

425
00:15:41,189 --> 00:15:38,720
all of these are capabilities

426
00:15:42,949 --> 00:15:41,199
to do multiple types of research in

427
00:15:45,030 --> 00:15:42,959
those areas

428
00:15:47,269 --> 00:15:45,040
we have a number of outside

429
00:15:48,790 --> 00:15:47,279
facilities of course the

430
00:15:50,710 --> 00:15:48,800
the largest of which was recently

431
00:15:52,389 --> 00:15:50,720
occupied by the alpha magnetic

432
00:15:53,430 --> 00:15:52,399
spectrometer but we have a number of

433
00:15:56,069 --> 00:15:53,440
smaller

434
00:15:57,590 --> 00:15:56,079
payloads as well uh that that have

435
00:15:58,470 --> 00:15:57,600
arrived the station and many that are

436
00:16:00,949 --> 00:15:58,480
coming

437
00:16:03,990 --> 00:16:00,959
uh to study new technologies as well as

438
00:16:07,509 --> 00:16:04,000

study the earth uh and the stars as well

439
00:16:09,990 --> 00:16:07,519
so we're well on our way um where we've

440
00:16:11,910 --> 00:16:10,000
we you won't see the same winged vehicle

441
00:16:13,910 --> 00:16:11,920
visiting iss but we have a number of

442
00:16:14,949 --> 00:16:13,920
other capabilities or systems that will

443
00:16:17,509 --> 00:16:14,959
support us

444
00:16:19,509 --> 00:16:17,519
uh we have uh of course the new uh

445
00:16:22,150 --> 00:16:19,519
spacex vehicle that hopefully will be

446
00:16:23,509 --> 00:16:22,160
flying here towards the end of this year

447
00:16:26,629 --> 00:16:23,519
and the

448
00:16:29,509 --> 00:16:26,639
cygnus vehicle that will be provided by

449
00:16:32,550 --> 00:16:29,519
orbital which will also be arriving

450
00:16:34,629 --> 00:16:32,560
into this year maybe early next year

451
00:16:36,870 --> 00:16:34,639
uh in addition to that we still have the

452
00:16:38,710 --> 00:16:36,880
htv provided by our japanese colleagues

453
00:16:40,629 --> 00:16:38,720
and the atv by our european colleagues

454
00:16:42,629 --> 00:16:40,639
and these vehicles will

455
00:16:44,069 --> 00:16:42,639
support us very well from a logistics

456
00:16:45,670 --> 00:16:44,079
perspective and allow us to do the

457
00:16:47,430 --> 00:16:45,680
research we want to do

458
00:16:48,710 --> 00:16:47,440
so so as you look forward we have a

459
00:16:51,030 --> 00:16:48,720
robust

460
00:16:52,790 --> 00:16:51,040
capability the this shuttle flight will

461
00:16:55,350 --> 00:16:52,800
keep us will provide us additional

462
00:16:57,749 --> 00:16:55,360
supplies uh to give us a little time to

463
00:17:00,470 --> 00:16:57,759

let these new systems uh uh come to

464
00:17:03,509 --> 00:17:00,480
fruition in their own time and uh and

465
00:17:05,909 --> 00:17:03,519
that will allow us to to uh provide the

466
00:17:07,669 --> 00:17:05,919
the appropriate not only supplies for

467
00:17:09,829 --> 00:17:07,679
the crews but all the research hardware

468
00:17:11,990 --> 00:17:09,839
you need to conduct uh the many

469
00:17:13,829 --> 00:17:12,000
experiments that that we want to conduct

470
00:17:16,230 --> 00:17:13,839
on orbit so

471
00:17:19,110 --> 00:17:16,240
this is a this has been a great uh

472
00:17:21,189 --> 00:17:19,120
period for all of us we've learned a lot

473
00:17:23,669 --> 00:17:21,199
but what this flight represents to us is

474
00:17:26,309 --> 00:17:23,679
a transition now from to to utilizing

475
00:17:28,069 --> 00:17:26,319
this asset that we've built and i expect

476
00:17:30,549 --> 00:17:28,079
we'll learn tremendous things along the

477
00:17:33,350 --> 00:17:30,559
way contribute to society in a way we

478
00:17:34,470 --> 00:17:33,360
can't even imagine today thank you

479
00:17:36,070 --> 00:17:34,480
thank you

480
00:17:38,230 --> 00:17:36,080
all right we'll be happy to take

481
00:17:40,150 --> 00:17:38,240
questions now in order to ensure that

482
00:17:41,669 --> 00:17:40,160
everyone has a chance we'd like to limit

483
00:17:42,549 --> 00:17:41,679
it to one question and a follow-up

484
00:17:46,950 --> 00:17:42,559
please

485
00:17:48,710 --> 00:17:46,960
state your name and affiliation and to

486
00:17:50,470 --> 00:17:48,720
whom you're addressing your question and

487
00:17:52,070 --> 00:17:50,480
we'll start things off if we could with

488
00:17:54,630 --> 00:17:52,080

seth bernstein

489
00:17:55,830 --> 00:17:54,640
thank you ornstein from ap for lori

490
00:17:58,310 --> 00:17:55,840
garver

491
00:18:01,430 --> 00:17:58,320
uh i know you're not ready to announce

492
00:18:03,029 --> 00:18:01,440
the sls architecture here yet again can

493
00:18:04,950 --> 00:18:03,039
you explain to us

494
00:18:06,710 --> 00:18:04,960
what you are deciding between what

495
00:18:09,110 --> 00:18:06,720
options you're trying to figure what's

496
00:18:12,070 --> 00:18:09,120
you know what is that

497
00:18:14,470 --> 00:18:12,080
point that's keeping you from doing this

498
00:18:16,870 --> 00:18:14,480
and fulfilling what the senate wants

499
00:18:19,270 --> 00:18:16,880
um congress wants and

500
00:18:22,390 --> 00:18:19,280
i guess as a follow-up it's been 16

501
00:18:24,150 --> 00:18:22,400
months since you've killed constellation

502
00:18:25,830 --> 00:18:24,160
the lack

503
00:18:27,510 --> 00:18:25,840
you know some of your critics say the

504
00:18:29,990 --> 00:18:27,520
lack of details is one of the reasons

505
00:18:31,430 --> 00:18:30,000
why people believe you're killing human

506
00:18:33,750 --> 00:18:31,440
space flight

507
00:18:37,190 --> 00:18:33,760
why have you had such a hard time coming

508
00:18:39,590 --> 00:18:37,200
up with details decisions focus on your

509
00:18:42,470 --> 00:18:39,600
next generation of whatever is happening

510
00:18:45,029 --> 00:18:42,480
you know you've had a lot of time why

511
00:18:46,470 --> 00:18:45,039
why can't you provide sort of more clear

512
00:18:48,230 --> 00:18:46,480
path here

513
00:18:49,029 --> 00:18:48,240

thanks seth i disagree with the promise

514
00:18:53,029 --> 00:18:49,039
of

515
00:18:55,350 --> 00:18:53,039
long time it was only in april that we

516
00:18:59,350 --> 00:18:55,360
even had a budget that was passed

517
00:19:00,789 --> 00:18:59,360
for 2011 and and beyond i think we all

518
00:19:03,110 --> 00:19:00,799
want the same thing

519
00:19:05,270 --> 00:19:03,120
we all in this country at nasa and the

520
00:19:07,350 --> 00:19:05,280
congress want a program that is

521
00:19:09,909 --> 00:19:07,360
sustainable affordable and is going to

522
00:19:11,510 --> 00:19:09,919
allow us to again go beyond low earth

523
00:19:13,909 --> 00:19:11,520
orbit and extend the presence of

524
00:19:16,150 --> 00:19:13,919
humanity into the solar system

525
00:19:17,669 --> 00:19:16,160
we need to make sure that the systems

526
00:19:19,350 --> 00:19:17,679
that we are developing

527
00:19:21,590 --> 00:19:19,360
are going to be sustainable we are

528
00:19:23,909 --> 00:19:21,600
looking at the cost analysis of these

529
00:19:24,870 --> 00:19:23,919
final trades on specific designs of a

530
00:19:26,230 --> 00:19:24,880
rocket

531
00:19:29,669 --> 00:19:26,240
it is

532
00:19:31,270 --> 00:19:29,679
interesting to me that this has become a

533
00:19:33,350 --> 00:19:31,280
an issue that people believe we're not

534
00:19:35,830 --> 00:19:33,360
making progress because they don't have

535
00:19:37,270 --> 00:19:35,840
the finer points on this design we have

536
00:19:38,630 --> 00:19:37,280
been working

537
00:19:39,590 --> 00:19:38,640
consistently

538
00:19:42,230 --> 00:19:39,600

since

539
00:19:44,710 --> 00:19:42,240
this administration even

540
00:19:46,230 --> 00:19:44,720
continuing after the termination of

541
00:19:48,710 --> 00:19:46,240
consolation you said it was terminated

542
00:19:51,190 --> 00:19:48,720
15 months ago it obviously was not

543
00:19:53,190 --> 00:19:51,200
legally could not be until just two

544
00:19:55,990 --> 00:19:53,200
months ago so that is a bit of a

545
00:19:58,470 --> 00:19:56,000
difference in your timeline in addition

546
00:20:01,350 --> 00:19:58,480
we are going to utilize as doug uh

547
00:20:03,510 --> 00:20:01,360
really uh concisely pointed out these

548
00:20:05,669 --> 00:20:03,520
skills these people many of these

549
00:20:07,510 --> 00:20:05,679
systems they have been an investment

550
00:20:09,190 --> 00:20:07,520
that this nation has made that we intend

551
00:20:10,310 --> 00:20:09,200
to carry forward with the new systems

552
00:20:12,390 --> 00:20:10,320
just like we've already made the

553
00:20:14,149 --> 00:20:12,400
determination on orion

554
00:20:16,789 --> 00:20:14,159
the requirements are very very similar

555
00:20:18,630 --> 00:20:16,799
with what we need to go again uh further

556
00:20:21,590 --> 00:20:18,640
we need to be able to have systems

557
00:20:24,070 --> 00:20:21,600
though that are streamlined in the cost

558
00:20:25,669 --> 00:20:24,080
more efficient and since those systems

559
00:20:27,350 --> 00:20:25,679
are no longer focused on the space

560
00:20:29,110 --> 00:20:27,360
station since we're doing that in a

561
00:20:30,710 --> 00:20:29,120
different way can be focused

562
00:20:33,190 --> 00:20:30,720
specifically on going beyond the earth

563
00:20:35,430 --> 00:20:33,200

orbit so the specific cost trades for

564
00:20:37,350 --> 00:20:35,440
the specific cost trades for sls you're

565
00:20:39,669 --> 00:20:37,360
weighing what are they right now

566
00:20:42,230 --> 00:20:39,679
precisely the cost analysis and then as

567
00:20:44,710 --> 00:20:42,240
we outlined in our report to congress in

568
00:20:46,549 --> 00:20:44,720
january an independent cost assessment

569
00:20:48,470 --> 00:20:46,559
those are the final stages being worked

570
00:20:51,110 --> 00:20:48,480
now to make sure the systems we choose

571
00:20:53,669 --> 00:20:51,120
we can afford to fly and we did inherit

572
00:20:55,350 --> 00:20:53,679
a system that was in disarray we

573
00:20:58,470 --> 00:20:55,360
inherited a system that had the space

574
00:21:00,870 --> 00:20:58,480
station going into this pacific ocean in

575
00:21:02,870 --> 00:21:00,880
2016 we had an

576
00:21:04,710 --> 00:21:02,880
aries orion system that would not have

577
00:21:06,149 --> 00:21:04,720
been able to get to the space station

578
00:21:08,230 --> 00:21:06,159
before it was deorbited there would have

579
00:21:10,470 --> 00:21:08,240
been not only a human spaceflight gap of

580
00:21:12,470 --> 00:21:10,480
launches from this country but a human

581
00:21:15,350 --> 00:21:12,480
spaceflight gap as in no americans or

582
00:21:17,190 --> 00:21:15,360
other astronauts in space we're space

583
00:21:19,430 --> 00:21:17,200
faring civilization now we have been for

584
00:21:21,110 --> 00:21:19,440
over 10 years we have been able to

585
00:21:23,510 --> 00:21:21,120
sustain that we're going to shorten the

586
00:21:25,590 --> 00:21:23,520
gap if we can with this commercial space

587
00:21:28,230 --> 00:21:25,600
program so we count

588
00:21:29,990 --> 00:21:28,240

less on the russian soyuz vehicle when

589
00:21:32,710 --> 00:21:30,000
we came in we would have been counting

590
00:21:34,870 --> 00:21:32,720
on the russian vehicle from a year ago

591
00:21:36,630 --> 00:21:34,880
because these last two shuttle flights

592
00:21:38,230 --> 00:21:36,640
were not funded

593
00:21:40,470 --> 00:21:38,240
in the past administration they were not

594
00:21:43,270 --> 00:21:40,480
funded by the last congresses this is a

595
00:21:44,950 --> 00:21:43,280
new program we funded the ams program we

596
00:21:46,710 --> 00:21:44,960
funded this mission that we hope to

597
00:21:49,990 --> 00:21:46,720
launch tomorrow shortening the gap at

598
00:21:51,909 --> 00:21:50,000
that end we believe using u.s industry

599
00:21:54,390 --> 00:21:51,919
american industry that has been with us

600
00:21:56,470 --> 00:21:54,400
for over 50 years we can within that

601
00:21:58,549 --> 00:21:56,480
three to five year time frame again

602
00:22:00,470 --> 00:21:58,559
launch humans from this nation to and

603
00:22:03,029 --> 00:22:00,480
from the international space station

604
00:22:05,029 --> 00:22:03,039
extending its useful life utilizing it

605
00:22:06,710 --> 00:22:05,039
just what mike staffordini said we built

606
00:22:09,909 --> 00:22:06,720
it for

607
00:22:12,470 --> 00:22:09,919
okay j barbary j barbary with nbc uh

608
00:22:15,110 --> 00:22:12,480
lori for you and doug

609
00:22:17,190 --> 00:22:15,120
uh you mentioned while ago we got orion

610
00:22:19,029 --> 00:22:17,200
back as the multipurpose

611
00:22:20,950 --> 00:22:19,039
sitting i'm looking at the

612
00:22:22,149 --> 00:22:20,960
shuttle setting there now there's those

613
00:22:26,310 --> 00:22:22,159

rockets

614
00:22:29,350 --> 00:22:26,320
flown 100 or 216 times 218 times

615
00:22:31,590 --> 00:22:29,360
successfully they are man-rated you have

616
00:22:33,669 --> 00:22:31,600
the ssme engines inside they're

617
00:22:35,350 --> 00:22:33,679
man-rated you've got equipment here

618
00:22:38,710 --> 00:22:35,360
ready to go that you could possibly go

619
00:22:40,950 --> 00:22:38,720
with by 2016. a lot of people here are

620
00:22:42,230 --> 00:22:40,960
wondering why you're not doing it now i

621
00:22:44,470 --> 00:22:42,240
want to

622
00:22:47,270 --> 00:22:44,480
mention the fact that

623
00:22:49,430 --> 00:22:47,280
two years ago we had 12 000 people

624
00:22:51,510 --> 00:22:49,440
working here and you have been very

625
00:22:54,230 --> 00:22:51,520
complimentary all of you

626
00:22:55,510 --> 00:22:54,240
on the excellent work that the people on

627
00:22:58,470 --> 00:22:55,520
shuttle did

628
00:23:00,149 --> 00:22:58,480
now we have six thousand seven hundred

629
00:23:02,630 --> 00:23:00,159
after this mission we're going to have a

630
00:23:04,950 --> 00:23:02,640
thousand and get personal

631
00:23:07,350 --> 00:23:04,960
my own daughter about your age she's a

632
00:23:10,070 --> 00:23:07,360
single mother she worked out here 26

633
00:23:12,070 --> 00:23:10,080
years she lost her job a year ago

634
00:23:14,149 --> 00:23:12,080
she's now lost her home she won't let

635
00:23:17,590 --> 00:23:14,159
her dad help her because she's too

636
00:23:19,750 --> 00:23:17,600
independent as he is but anyway

637
00:23:22,870 --> 00:23:19,760
she's holding on to be one of the people

638
00:23:25,830 --> 00:23:22,880

that would be called back now what i'm

639
00:23:27,669 --> 00:23:25,840
asking you here i know how hard lori is

640
00:23:30,710 --> 00:23:27,679
working i know how hard doug is working

641
00:23:33,029 --> 00:23:30,720
i know how hard charlie is working

642
00:23:35,510 --> 00:23:33,039
can't you guys go back in the next two

643
00:23:36,870 --> 00:23:35,520
weeks to washington

644
00:23:40,470 --> 00:23:36,880
crack the whip

645
00:23:41,909 --> 00:23:40,480
come back when we have wheels stopped

646
00:23:43,909 --> 00:23:41,919
on atlantis

647
00:23:46,549 --> 00:23:43,919
and tell these people here what we got

648
00:23:48,149 --> 00:23:46,559
for heavy lift where we're going to go

649
00:23:50,310 --> 00:23:48,159
give them a little hope

650
00:23:52,630 --> 00:23:50,320
because they really are not holding on

651
00:23:54,789 --> 00:23:52,640
very much you think it's possible we

652
00:23:58,390 --> 00:23:54,799
could get an sls statement by the end of

653
00:24:03,909 --> 00:24:00,470
thanks for your question jay i i

654
00:24:07,590 --> 00:24:03,919
absolutely agree that we have incredible

655
00:24:09,909 --> 00:24:07,600
systems to build on and i agree that we

656
00:24:13,510 --> 00:24:09,919
are working all as i said toward the

657
00:24:15,350 --> 00:24:13,520
same thing the sls does have a path we

658
00:24:17,110 --> 00:24:15,360
do recognize the

659
00:24:20,230 --> 00:24:17,120
design reference vehicle that was in the

660
00:24:23,269 --> 00:24:20,240
report that was in january that we are

661
00:24:25,350 --> 00:24:23,279
making sure is the best

662
00:24:28,149 --> 00:24:25,360
system that we can have procuring it in

663
00:24:30,149 --> 00:24:28,159

a way at best value to the taxpayer so

664
00:24:32,310 --> 00:24:30,159
that not only can your daughter and

665
00:24:34,230 --> 00:24:32,320
others continue to have jobs in this

666
00:24:36,470 --> 00:24:34,240
country but that not every job will

667
00:24:39,269 --> 00:24:36,480
necessarily be paid for by the taxpayer

668
00:24:42,470 --> 00:24:39,279
if we can reduce our operational costs

669
00:24:44,789 --> 00:24:42,480
in these vehicles we can again

670
00:24:46,230 --> 00:24:44,799
win back that commercial market share

671
00:24:48,149 --> 00:24:46,240
that we have lost in this country over

672
00:24:50,310 --> 00:24:48,159
the last 20 years we used to launch

673
00:24:52,630 --> 00:24:50,320
eighty ninety percent of commercial

674
00:24:54,470 --> 00:24:52,640
launches in this country we are down

675
00:24:56,630 --> 00:24:54,480
below twenty percent we have lost that

676
00:24:59,590 --> 00:24:56,640
market to the french the chinese and the

677
00:25:02,310 --> 00:24:59,600
russians we need to have systems that we

678
00:25:04,310 --> 00:25:02,320
can afford to fly not just for nasa but

679
00:25:06,710 --> 00:25:04,320
for the military and for commercial so

680
00:25:09,669 --> 00:25:06,720
that the space coast can again

681
00:25:12,149 --> 00:25:09,679
be that vibrant place that we all know

682
00:25:13,990 --> 00:25:12,159
it can be and the workforce here doesn't

683
00:25:16,950 --> 00:25:14,000
have to just be

684
00:25:19,830 --> 00:25:16,960
working for uncle sam they can again be

685
00:25:22,310 --> 00:25:19,840
part of this great american enterprise

686
00:25:25,190 --> 00:25:22,320
of aerospace exploration so yes whether

687
00:25:26,310 --> 00:25:25,200
it's two weeks or four weeks we're going

688
00:25:29,750 --> 00:25:26,320

to get you

689
00:25:31,269 --> 00:25:29,760
that system detail that you need so that

690
00:25:35,590 --> 00:25:31,279
companies can again

691
00:25:38,549 --> 00:25:35,600
uh look to the future we really really

692
00:25:40,870 --> 00:25:38,559
recognize that uh this workforce is what

693
00:25:43,909 --> 00:25:40,880
has led this nation aerospace is one of

694
00:25:45,510 --> 00:25:43,919
the greatest industries on the planet

695
00:25:48,230 --> 00:25:45,520
u.s aerospace industry is one of our

696
00:25:50,789 --> 00:25:48,240
last of the uh you know positive export

697
00:25:52,470 --> 00:25:50,799
industries and appreciate the work of

698
00:25:54,310 --> 00:25:52,480
your family and the families of

699
00:25:55,350 --> 00:25:54,320
everybody uh in

700
00:25:59,510 --> 00:25:55,360
this

701
00:26:01,750 --> 00:25:59,520
great not only state but country and we

702
00:26:02,549 --> 00:26:01,760
in washington believe it or not really

703
00:26:06,149 --> 00:26:02,559
do

704
00:26:08,310 --> 00:26:06,159
intend to make the best use of

705
00:26:10,710 --> 00:26:08,320
the incredible talent that we have and

706
00:26:17,269 --> 00:26:10,720
we will do it as soon as possible i got

707
00:26:21,029 --> 00:26:19,029
thanks very much irene klotz with

708
00:26:22,549 --> 00:26:21,039
reuters also for you lori thanks for

709
00:26:25,830 --> 00:26:22,559
doing this um

710
00:26:28,549 --> 00:26:25,840
in the theme of the government jobs um

711
00:26:30,630 --> 00:26:28,559
the nasa right now is uh like most of

712
00:26:32,710 --> 00:26:30,640
the federal and state everybody's

713
00:26:35,029 --> 00:26:32,720

budgets is under tremendous pressure to

714
00:26:38,070 --> 00:26:35,039
reduce get smaller find other ways to do

715
00:26:39,909 --> 00:26:38,080
things um so in light of that uh do you

716
00:26:41,990 --> 00:26:39,919
think that nasa is going to be upping

717
00:26:44,710 --> 00:26:42,000
its percentage of uh

718
00:26:46,470 --> 00:26:44,720
its uh budget for commercial um

719
00:26:49,430 --> 00:26:46,480
endeavors right now it's like roughly

720
00:26:52,470 --> 00:26:49,440
270 plus your transportation contracts

721
00:26:54,470 --> 00:26:52,480
um under the cc dev and also

722
00:26:56,470 --> 00:26:54,480
how are you planning to

723
00:26:58,870 --> 00:26:56,480
handle

724
00:27:00,310 --> 00:26:58,880
the overruns on james webb telescope

725
00:27:04,789 --> 00:27:00,320
thanks

726
00:27:06,950 --> 00:27:04,799
do recognize that the country is making

727
00:27:08,549 --> 00:27:06,960
tough choices tough choices about

728
00:27:10,870 --> 00:27:08,559
especially its government dollars and

729
00:27:12,310 --> 00:27:10,880
nasa we feel we are making those tough

730
00:27:15,590 --> 00:27:12,320
choices and have made them with our

731
00:27:18,149 --> 00:27:15,600
budget requests of 2012. we

732
00:27:21,029 --> 00:27:18,159
absolutely have laid out where we intend

733
00:27:22,549 --> 00:27:21,039
to go with our deep space programs at

734
00:27:24,470 --> 00:27:22,559
nearly three billion dollars a year the

735
00:27:26,230 --> 00:27:24,480
space station program at nearly three

736
00:27:28,310 --> 00:27:26,240
billion dollars a year the commercial

737
00:27:29,909 --> 00:27:28,320
crew program the our request has been

738
00:27:32,310 --> 00:27:29,919

850 million

739
00:27:34,470 --> 00:27:32,320
we will see ultimately where that all

740
00:27:36,789 --> 00:27:34,480
goes we believe we need a balanced

741
00:27:38,789 --> 00:27:36,799
program nasa needs to be doing the hard

742
00:27:41,110 --> 00:27:38,799
thing of the deep space exploration of

743
00:27:43,830 --> 00:27:41,120
the space science earth sciences and

744
00:27:46,070 --> 00:27:43,840
aeronautics while we work with our

745
00:27:48,070 --> 00:27:46,080
private sector in new ways to reduce the

746
00:27:49,590 --> 00:27:48,080
operational costs of things like

747
00:27:52,230 --> 00:27:49,600
transportation to and from the space

748
00:27:53,830 --> 00:27:52,240
station with cargo and crew as to the

749
00:27:55,590 --> 00:27:53,840
question of the james webb space

750
00:27:58,230 --> 00:27:55,600
telescope

751
00:28:00,230 --> 00:27:58,240
we this this is a perfect example of

752
00:28:01,990 --> 00:28:00,240
nasa revealing

753
00:28:03,430 --> 00:28:02,000
the unknown and reaching for new heights

754
00:28:05,909 --> 00:28:03,440
it was a stretch program we have

755
00:28:07,990 --> 00:28:05,919
developed technologies we will be

756
00:28:11,430 --> 00:28:08,000
prepared to lay out a budget that will

757
00:28:13,590 --> 00:28:11,440
allow us to launch the web telescope yet

758
00:28:14,549 --> 00:28:13,600
in this decade

759
00:28:16,549 --> 00:28:14,559
within

760
00:28:19,029 --> 00:28:16,559
the next budget cycle we'll be working

761
00:28:21,430 --> 00:28:19,039
with a congress to assure them that we

762
00:28:24,549 --> 00:28:21,440
can manage this program and

763
00:28:26,630 --> 00:28:24,559

develop the most amazing space telescope

764
00:28:27,830 --> 00:28:26,640
humanity's ever seen

765
00:28:29,669 --> 00:28:27,840
okay we'll go to the other side of the

766
00:28:32,549 --> 00:28:29,679
room for some questions now and begin

767
00:28:34,710 --> 00:28:32,559
with keith uh keith cowan yeswatch.com

768
00:28:36,470 --> 00:28:34,720
uh it's for anybody who wants to answer

769
00:28:38,070 --> 00:28:36,480
yesterday lori and a bunch of us went on

770
00:28:40,149 --> 00:28:38,080
a spacex tour here at the cape and we

771
00:28:41,590 --> 00:28:40,159
all heard talk of launching the falcon

772
00:28:43,029 --> 00:28:41,600
line with a single digit number of

773
00:28:44,389 --> 00:28:43,039
people and

774
00:28:46,149 --> 00:28:44,399
mission control rooms smaller than the

775
00:28:47,990 --> 00:28:46,159
one we're in right now and they want to

776
00:28:49,510 --> 00:28:48,000
do it but even fewer people

777
00:28:51,350 --> 00:28:49,520
now nasa is about to embark on the

778
00:28:53,269 --> 00:28:51,360
development of the sls orion missions

779
00:28:55,669 --> 00:28:53,279
the asteroids and continuing to use the

780
00:28:57,269 --> 00:28:55,679
iss is nasa ever going to approach the

781
00:28:58,950 --> 00:28:57,279
levels of innovation and efficiency that

782
00:29:00,870 --> 00:28:58,960
are evidenced by spacex and these other

783
00:29:02,789 --> 00:29:00,880
companies and if so when and if not why

784
00:29:04,950 --> 00:29:02,799
not and i guess what i'm really asking

785
00:29:07,430 --> 00:29:04,960
it's the 21st century and we've already

786
00:29:09,269 --> 00:29:07,440
used up 10 of it can nasa really justify

787
00:29:11,269 --> 00:29:09,279
continue to justify operations that use

788
00:29:15,510 --> 00:29:11,279

a marching army when the private sector

789
00:29:21,430 --> 00:29:18,230
i'll start and let uh

790
00:29:23,029 --> 00:29:21,440
anyone else feel free to jump in

791
00:29:24,630 --> 00:29:23,039
i think spacex would be the first people

792
00:29:26,630 --> 00:29:24,640
to tell you as they told us yesterday

793
00:29:28,149 --> 00:29:26,640
that they could not be doing what

794
00:29:29,830 --> 00:29:28,159
they're doing without the nasa the

795
00:29:32,149 --> 00:29:29,840
government investment they're on a pad

796
00:29:33,269 --> 00:29:32,159
that was formerly the titan pad they

797
00:29:35,110 --> 00:29:33,279
could not have developed that from

798
00:29:37,029 --> 00:29:35,120
scratch for what they did they are

799
00:29:38,789 --> 00:29:37,039
utilizing the investment that we have

800
00:29:42,230 --> 00:29:38,799
made just as

801
00:29:44,470 --> 00:29:42,240
the orion team is the sls team will

802
00:29:46,149 --> 00:29:44,480
this is what we do we want to develop in

803
00:29:49,190 --> 00:29:46,159
the government side those technologies

804
00:29:51,669 --> 00:29:49,200
so that companies can innovate and use

805
00:29:53,269 --> 00:29:51,679
fewer people will nasa be using that

806
00:29:55,110 --> 00:29:53,279
view of people in order to doing

807
00:29:56,470 --> 00:29:55,120
something routine i hope not because

808
00:29:58,870 --> 00:29:56,480
that would mean we'd be competing with

809
00:29:59,990 --> 00:29:58,880
the private sector we're going to do

810
00:30:01,430 --> 00:30:00,000
those things that are going to take a

811
00:30:04,549 --> 00:30:01,440
few more people that are going to take

812
00:30:06,549 --> 00:30:04,559
that stretch of imagination and as we

813
00:30:08,230 --> 00:30:06,559

develop those technologies this is what

814
00:30:10,470 --> 00:30:08,240
makes america great in our capitalist

815
00:30:12,549 --> 00:30:10,480
society the government doesn't want to

816
00:30:14,950 --> 00:30:12,559
pay for everything we want to be a

817
00:30:17,510 --> 00:30:14,960
smaller percentage of aerospace than we

818
00:30:19,110 --> 00:30:17,520
are now not by shrinking we would love

819
00:30:21,110 --> 00:30:19,120
our investment to be greater which is

820
00:30:24,389 --> 00:30:21,120
going to allow the private sector

821
00:30:27,269 --> 00:30:24,399
to leverage that investment on behalf of

822
00:30:30,470 --> 00:30:27,279
all of us and open up new markets create

823
00:30:32,070 --> 00:30:30,480
new jobs and provide the economic return

824
00:30:34,389 --> 00:30:32,080
that has been so prevalent with this

825
00:30:36,470 --> 00:30:34,399
industry so we couldn't be prouder of

826
00:30:39,750 --> 00:30:36,480
spacex we also couldn't be prouder of

827
00:30:43,430 --> 00:30:39,760
the shuttle team the orion team

828
00:30:46,149 --> 00:30:43,440
the james webb team we have this

829
00:30:47,029 --> 00:30:46,159
charge that we do things in government

830
00:30:48,870 --> 00:30:47,039
and

831
00:30:50,870 --> 00:30:48,880
i have worked in both the private sector

832
00:30:53,750 --> 00:30:50,880
and government find both

833
00:30:56,230 --> 00:30:53,760
incredibly rewarding but we don't do the

834
00:30:58,070 --> 00:30:56,240
same thing and there's reason

835
00:31:00,710 --> 00:30:58,080
frank boring

836
00:31:02,630 --> 00:31:00,720
curtis kruger st petersburg times

837
00:31:04,789 --> 00:31:02,640
i think the public understands well that

838
00:31:06,630 --> 00:31:04,799

the space shuttle program is ending but

839
00:31:08,070 --> 00:31:06,640
they have a fuzzy understanding of what

840
00:31:10,070 --> 00:31:08,080
comes next some of the things you've

841
00:31:12,630 --> 00:31:10,080
been talking about today how would you

842
00:31:14,789 --> 00:31:12,640
summarize so the public can understand

843
00:31:16,630 --> 00:31:14,799
what's coming next for american human

844
00:31:20,470 --> 00:31:16,640
space flight both commercially and for

845
00:31:23,509 --> 00:31:20,480
nasa i i just start with the details of

846
00:31:24,470 --> 00:31:23,519
of mike and doug to follow

847
00:31:26,470 --> 00:31:24,480
we are going to utilize the

848
00:31:29,430 --> 00:31:26,480
international space station for human

849
00:31:31,190 --> 00:31:29,440
space flight we are going to do exactly

850
00:31:34,630 --> 00:31:31,200
what we set out to do

851
00:31:37,029 --> 00:31:34,640
wow more than 20 years ago but what this

852
00:31:38,870 --> 00:31:37,039
team has been working toward incredibly

853
00:31:41,750 --> 00:31:38,880
incredibly successfully

854
00:31:43,830 --> 00:31:41,760
these last 10 years launching and as

855
00:31:45,350 --> 00:31:43,840
mike laid out building the international

856
00:31:47,430 --> 00:31:45,360
space station to be utilized so we're

857
00:31:50,070 --> 00:31:47,440
going to utilize it and we are going to

858
00:31:52,070 --> 00:31:50,080
lower the operational cost of it so that

859
00:31:53,669 --> 00:31:52,080
we can do those hard things what are the

860
00:31:56,230 --> 00:31:53,679
big part of the operational cost of

861
00:31:58,070 --> 00:31:56,240
station transportation to and from

862
00:32:02,070 --> 00:31:58,080
nasa is going next

863
00:32:03,750 --> 00:32:02,080

to take humans farther than ever before

864
00:32:05,269 --> 00:32:03,760
beyond the moon to an asteroid and

865
00:32:07,669 --> 00:32:05,279
onward to mars we're an exploring

866
00:32:09,509 --> 00:32:07,679
species we are in the government going

867
00:32:13,350 --> 00:32:09,519
to be doing the lewis and clark type

868
00:32:15,509 --> 00:32:13,360
missions so that we can be followed by

869
00:32:17,750 --> 00:32:15,519
the settlers the pioneers who come in

870
00:32:19,430 --> 00:32:17,760
and want to take some risk and be able

871
00:32:21,190 --> 00:32:19,440
to provide a service not just to the

872
00:32:23,269 --> 00:32:21,200
government but to people beyond the

873
00:32:25,190 --> 00:32:23,279
government nasa is not changing its role

874
00:32:27,909 --> 00:32:25,200
at all in human space flight we are

875
00:32:31,269 --> 00:32:27,919
going to continue to utilize the space

876
00:32:32,549 --> 00:32:31,279
station to exceed what it was we even

877
00:32:35,830 --> 00:32:32,559
set out to do

878
00:32:36,870 --> 00:32:35,840
as i said by extending it and to be able

879
00:32:39,029 --> 00:32:36,880
to

880
00:32:41,269 --> 00:32:39,039
reap the rewards

881
00:32:44,549 --> 00:32:41,279
on behalf of the american people

882
00:32:50,470 --> 00:32:47,669
23 23 hours almost exactly what do you

883
00:32:54,710 --> 00:32:52,710
and

884
00:32:56,549 --> 00:32:54,720
mother nature willing we're going to be

885
00:32:58,230 --> 00:32:56,559
able to carry out this last space

886
00:33:00,789 --> 00:32:58,240
shuttle mission precisely as mike

887
00:33:02,950 --> 00:33:00,799
sufferdini said to stock the space

888
00:33:05,269 --> 00:33:02,960

station with all those wonderful things

889
00:33:07,990 --> 00:33:05,279
to keep the utilization and research

890
00:33:09,669 --> 00:33:08,000
programs going and to keep it well

891
00:33:11,669 --> 00:33:09,679
stocked until we're there with our

892
00:33:14,310 --> 00:33:11,679
international partner vehicles and our

893
00:33:16,389 --> 00:33:14,320
own u.s made vehicles launch from the

894
00:33:19,190 --> 00:33:16,399
united states very soon

895
00:33:22,070 --> 00:33:19,200
i can i can expand on some of this in

896
00:33:24,310 --> 00:33:22,080
terms of space station utilization

897
00:33:27,190 --> 00:33:24,320
it is important for our research um it

898
00:33:28,310 --> 00:33:27,200
is the the place that we can learn about

899
00:33:30,389 --> 00:33:28,320
um

900
00:33:32,549 --> 00:33:30,399
living for long periods of time and

901
00:33:34,630 --> 00:33:32,559
keeping people healthy in in a closed

902
00:33:37,350 --> 00:33:34,640
environment and and it's gonna is going

903
00:33:41,190 --> 00:33:37,360
to provide the information we need for

904
00:33:44,149 --> 00:33:42,389
as well as

905
00:33:45,990 --> 00:33:44,159
provide the opportunity to test out

906
00:33:47,909 --> 00:33:46,000
systems when we send people on long

907
00:33:49,430 --> 00:33:47,919
missions our systems are going to have

908
00:33:51,990 --> 00:33:49,440
to be very reliable

909
00:33:52,789 --> 00:33:52,000
it's going to be if if assembly was the

910
00:33:55,430 --> 00:33:52,799
big

911
00:33:57,909 --> 00:33:55,440
uh challenge on space station uh

912
00:33:59,590 --> 00:33:57,919
development uh reliability for our

913
00:34:00,870 --> 00:33:59,600

systems for long missions is going to be

914
00:34:03,110 --> 00:34:00,880
important and we're going to learn about

915
00:34:05,750 --> 00:34:03,120
those on on space station so the

916
00:34:08,310 --> 00:34:05,760
research that we do there is is going to

917
00:34:11,109 --> 00:34:08,320
be geared in into a large degree for

918
00:34:14,550 --> 00:34:11,119
nasa on on preparing for these long

919
00:34:16,869 --> 00:34:14,560
missions and and lori said well about

920
00:34:18,950 --> 00:34:16,879
the path forward right now you hear more

921
00:34:21,909 --> 00:34:18,960
information about vehicles and that sort

922
00:34:24,629 --> 00:34:21,919
of thing but we are um we are at the

923
00:34:26,389 --> 00:34:24,639
stage of putting our our first foot

924
00:34:29,430 --> 00:34:26,399
forward and developing the key

925
00:34:31,270 --> 00:34:29,440
capabilities that we need for these

926
00:34:32,710 --> 00:34:31,280
these missions in the future and and it

927
00:34:34,389 --> 00:34:32,720
starts with a heavy lift vehicle and a

928
00:34:35,669 --> 00:34:34,399
crew vehicle and

929
00:34:37,270 --> 00:34:35,679
those

930
00:34:38,950 --> 00:34:37,280
we call it a capability driven

931
00:34:40,470 --> 00:34:38,960
architecture those are the things we

932
00:34:41,430 --> 00:34:40,480
need to be working on right now to

933
00:34:42,869 --> 00:34:41,440
prepare

934
00:34:43,589 --> 00:34:42,879
so

935
00:34:46,389 --> 00:34:43,599
we

936
00:34:47,829 --> 00:34:46,399
it is in a kind of a state where where

937
00:34:51,109 --> 00:34:47,839
we are in the develop more in a

938
00:34:53,510 --> 00:34:51,119

development development mode and

939
00:34:55,510 --> 00:34:53,520
but we do have our sights on

940
00:34:57,430 --> 00:34:55,520
on these these missions the future and

941
00:34:59,670 --> 00:34:57,440
that i believe we should be talking

942
00:35:01,510 --> 00:34:59,680
about more actually because that's

943
00:35:03,829 --> 00:35:01,520
that's why why we're building these

944
00:35:04,950 --> 00:35:03,839
vehicles it's to achieve things in space

945
00:35:08,069 --> 00:35:04,960
and learn

946
00:35:10,069 --> 00:35:08,079
learn about our our own solar system and

947
00:35:13,430 --> 00:35:10,079
home in the universe so

948
00:35:17,589 --> 00:35:15,430
let's see from an iss capability i would

949
00:35:20,550 --> 00:35:17,599
tell you that

950
00:35:22,550 --> 00:35:20,560
iss has three fundamental

951
00:35:25,109 --> 00:35:22,560
purposes that that help advance the

952
00:35:27,270 --> 00:35:25,119
different areas for iss and for nasa

953
00:35:29,349 --> 00:35:27,280
excuse me one of course is the research

954
00:35:30,950 --> 00:35:29,359
that we do in in when it comes to the

955
00:35:33,349 --> 00:35:30,960
research it's not only the fundamental

956
00:35:35,349 --> 00:35:33,359
research that's largely funded by nasa

957
00:35:38,470 --> 00:35:35,359
but we've also obligated about 50

958
00:35:39,430 --> 00:35:38,480
percent of the resources that the u.s

959
00:35:41,829 --> 00:35:39,440
has

960
00:35:42,790 --> 00:35:41,839
access to on iss for national lab

961
00:35:44,710 --> 00:35:42,800
research and this is where we're

962
00:35:47,829 --> 00:35:44,720
bringing in other government

963
00:35:50,790 --> 00:35:47,839

agencies industry and academia

964
00:35:51,990 --> 00:35:50,800
to utilize iss to for their own

965
00:35:53,829 --> 00:35:52,000
uh

966
00:35:55,510 --> 00:35:53,839
own purposes

967
00:35:58,390 --> 00:35:55,520
and we've started that at a much lower

968
00:36:00,150 --> 00:35:58,400
level we're about to to announce the npo

969
00:36:01,589 --> 00:36:00,160
that's going to help us further that ngo

970
00:36:02,550 --> 00:36:01,599
that's going to help us further that

971
00:36:04,550 --> 00:36:02,560
effort

972
00:36:06,630 --> 00:36:04,560
um and so that's uh

973
00:36:07,910 --> 00:36:06,640
that's all taking shape

974
00:36:10,790 --> 00:36:07,920
the other

975
00:36:12,230 --> 00:36:10,800
other part we play is as doug just

976
00:36:14,310 --> 00:36:12,240
mentioned and that is getting us ready

977
00:36:16,550 --> 00:36:14,320
for exploration today we've done quite a

978
00:36:17,910 --> 00:36:16,560
bit of human research talking about the

979
00:36:20,390 --> 00:36:17,920
adaptation

980
00:36:22,630 --> 00:36:20,400
of the human body to the microgravity

981
00:36:24,150 --> 00:36:22,640
environment uh

982
00:36:25,510 --> 00:36:24,160
not only is it the micro gravity

983
00:36:26,630 --> 00:36:25,520
environment but the rest of the

984
00:36:27,910 --> 00:36:26,640
environment around you radiation

985
00:36:29,910 --> 00:36:27,920
environment all these things are all

986
00:36:32,470 --> 00:36:29,920
things that are being demonstrated on

987
00:36:33,990 --> 00:36:32,480
iss we're making great strides in

988
00:36:35,910 --> 00:36:34,000

and

989
00:36:37,829 --> 00:36:35,920
conditioning the human so that when they

990
00:36:40,950 --> 00:36:37,839
return they actually can recover pretty

991
00:36:42,870 --> 00:36:40,960
quickly bone loss is down we've made

992
00:36:44,790 --> 00:36:42,880
remarkable strides but we've made those

993
00:36:46,790 --> 00:36:44,800
strides with relatively large systems

994
00:36:47,910 --> 00:36:46,800
that perhaps are going to be impractical

995
00:36:49,270 --> 00:36:47,920
to use

996
00:36:51,910 --> 00:36:49,280
on a trip

997
00:36:54,390 --> 00:36:51,920
to a to a far away body so

998
00:36:55,910 --> 00:36:54,400
we still have work to do in this area

999
00:36:57,349 --> 00:36:55,920
in addition to that

1000
00:36:58,950 --> 00:36:57,359
technology development this is where

1001
00:37:01,589 --> 00:36:58,960
we'll advance technologies for

1002
00:37:03,670 --> 00:37:01,599
exploration sometimes you just can't get

1003
00:37:05,510 --> 00:37:03,680
the testing done you need until you get

1004
00:37:07,829 --> 00:37:05,520
into the zero gravity environment and

1005
00:37:09,670 --> 00:37:07,839
and that's what iss provides

1006
00:37:10,950 --> 00:37:09,680
doug's talking about reliability we do a

1007
00:37:12,310 --> 00:37:10,960
lot of testing on the ground but

1008
00:37:13,829 --> 00:37:12,320
sometime particularly with new

1009
00:37:15,750 --> 00:37:13,839
technologies you find once you get in

1010
00:37:18,150 --> 00:37:15,760
orbit doesn't act quite the way you had

1011
00:37:20,150 --> 00:37:18,160
tested it and iss will give us that

1012
00:37:22,230 --> 00:37:20,160
advantage and we'll utilize that the

1013
00:37:24,710 --> 00:37:22,240

last piece of that is the the

1014
00:37:26,870 --> 00:37:24,720
demonstration of our capability so

1015
00:37:29,750 --> 00:37:26,880
you'll see us in the semi near future

1016
00:37:31,270 --> 00:37:29,760
start demonstrating um the operations

1017
00:37:33,109 --> 00:37:31,280
associated with a

1018
00:37:35,670 --> 00:37:33,119
a uh spacecraft that's far away from

1019
00:37:37,349 --> 00:37:35,680
earth the communication lags and and and

1020
00:37:38,710 --> 00:37:37,359
how the humans deal with it and how we

1021
00:37:40,710 --> 00:37:38,720
deal with it from an operational

1022
00:37:42,870 --> 00:37:40,720
standpoint when you send a command to a

1023
00:37:44,950 --> 00:37:42,880
system and you get a response 20 minutes

1024
00:37:47,270 --> 00:37:44,960
later that's a significant change some

1025
00:37:48,870 --> 00:37:47,280
of our guys particularly those at jpl do

1026
00:37:50,710 --> 00:37:48,880
that on a regular basis but in the human

1027
00:37:52,150 --> 00:37:50,720
world we haven't we haven't had to do

1028
00:37:53,990 --> 00:37:52,160
that too much and so that's part of what

1029
00:37:55,589 --> 00:37:54,000
we'll also

1030
00:37:57,109 --> 00:37:55,599
grow on iss

1031
00:37:59,190 --> 00:37:57,119
and then the last part of course is to

1032
00:38:01,670 --> 00:37:59,200
be the destination to encourage

1033
00:38:03,589 --> 00:38:01,680
commercialization of low earth orbit

1034
00:38:05,990 --> 00:38:03,599
and that's a critical role for nasa to

1035
00:38:07,589 --> 00:38:06,000
play and of course the iss is the

1036
00:38:09,910 --> 00:38:07,599
is the destination for the commercial

1037
00:38:12,630 --> 00:38:09,920
cargo folks that we've talked about uh

1038
00:38:14,710 --> 00:38:12,640

once they get up to to uh full

1039
00:38:17,190 --> 00:38:14,720
production we'll be using utilizing five

1040
00:38:19,589 --> 00:38:17,200
flights a year from from both spacex and

1041
00:38:21,430 --> 00:38:19,599
orbital a combination of those two uh so

1042
00:38:23,670 --> 00:38:21,440
we'll keep them very busy i expect them

1043
00:38:25,349 --> 00:38:23,680
to be uh in the near term stressed from

1044
00:38:26,950 --> 00:38:25,359
a production standpoint once they get

1045
00:38:28,630 --> 00:38:26,960
over the stress of their first couple of

1046
00:38:30,150 --> 00:38:28,640
flights i think they'll all look at

1047
00:38:32,310 --> 00:38:30,160
themselves and go gosh we got a lot of

1048
00:38:34,790 --> 00:38:32,320
flights to to put on the in a row and

1049
00:38:36,630 --> 00:38:34,800
they need to all be uh safe and and

1050
00:38:37,589 --> 00:38:36,640
productive and that'll also be a

1051
00:38:39,030 --> 00:38:37,599
learning

1052
00:38:40,950 --> 00:38:39,040
opportunity for them to do how do you

1053
00:38:42,790 --> 00:38:40,960
get a consistent production capability

1054
00:38:44,230 --> 00:38:42,800
to provide you a consistently

1055
00:38:45,670 --> 00:38:44,240
outstanding vehicle every flight and

1056
00:38:46,950 --> 00:38:45,680
that's what they need to learn to be to

1057
00:38:49,109 --> 00:38:46,960
be good at what they do and if we

1058
00:38:50,630 --> 00:38:49,119
weren't there to be that capability for

1059
00:38:51,829 --> 00:38:50,640
them that we they wouldn't have an

1060
00:38:53,750 --> 00:38:51,839
opportunity to grow because it's an

1061
00:38:55,750 --> 00:38:53,760
expensive business to go out and do on

1062
00:38:57,750 --> 00:38:55,760
your own without you know a customer

1063
00:38:59,030 --> 00:38:57,760

that that needs you and the same is true

1064
00:39:01,430 --> 00:38:59,040
for commercial crew when they're ready

1065
00:39:03,349 --> 00:39:01,440
to go fly the iss will be configured to

1066
00:39:04,230 --> 00:39:03,359
support the docking of those vehicles

1067
00:39:07,990 --> 00:39:04,240
and

1068
00:39:10,950 --> 00:39:08,000
a regular basis so those those are the

1069
00:39:13,670 --> 00:39:10,960
three big pieces that iss is going to uh

1070
00:39:16,390 --> 00:39:13,680
to support and and as you've heard uh

1071
00:39:18,870 --> 00:39:16,400
that helps us move on to where we need

1072
00:39:20,870 --> 00:39:18,880
to go as well not only helping industry

1073
00:39:22,150 --> 00:39:20,880
and and ourselves here on earth but

1074
00:39:23,990 --> 00:39:22,160
we're preparing ourselves for

1075
00:39:26,150 --> 00:39:24,000
exploration so it really is a toe hold

1076
00:39:29,430 --> 00:39:26,160
to our to our next step uh in

1077
00:39:30,790 --> 00:39:29,440
exploration of beyond low earth orbit

1078
00:39:32,150 --> 00:39:30,800
okay we'll take a few more on this side

1079
00:39:33,589 --> 00:39:32,160
of the room before we come back over

1080
00:39:35,349 --> 00:39:33,599
here frank

1081
00:39:37,190 --> 00:39:35,359
frank mooring with aviation week this is

1082
00:39:39,109 --> 00:39:37,200
also for you lori this morning you

1083
00:39:41,270 --> 00:39:39,119
mentioned or stressed that the the

1084
00:39:42,710 --> 00:39:41,280
national space policy includes

1085
00:39:44,150 --> 00:39:42,720
an emphasis on

1086
00:39:46,230 --> 00:39:44,160
international cooperation we've heard a

1087
00:39:47,829 --> 00:39:46,240
lot today about

1088
00:39:50,230 --> 00:39:47,839

u.s industry

1089
00:39:51,829 --> 00:39:50,240
and i wonder a couple of things if there

1090
00:39:54,550 --> 00:39:51,839
is a

1091
00:39:56,790 --> 00:39:54,560
an articulated approach

1092
00:39:59,589 --> 00:39:56,800
from this administration on

1093
00:40:02,310 --> 00:39:59,599
what the role is between the u.s as a as

1094
00:40:04,550 --> 00:40:02,320
a as you say a leader in space and its

1095
00:40:06,470 --> 00:40:04,560
international partners as opposed to

1096
00:40:08,390 --> 00:40:06,480
perhaps the old world which was

1097
00:40:11,349 --> 00:40:08,400
not in the critical path

1098
00:40:14,630 --> 00:40:11,359
and also uh

1099
00:40:16,710 --> 00:40:14,640
the uh china has just moved its its um

1100
00:40:17,990 --> 00:40:16,720
space station to the launch pad uh

1101
00:40:19,510 --> 00:40:18,000
they'll probably launch it later this

1102
00:40:22,309 --> 00:40:19,520
year and i know that there's a lot of

1103
00:40:24,470 --> 00:40:22,319
opposition in washington to uh any sort

1104
00:40:27,030 --> 00:40:24,480
of cooperation with with the chinese in

1105
00:40:29,349 --> 00:40:27,040
space right now but can you perhaps

1106
00:40:30,870 --> 00:40:29,359
elaborate what your posture is

1107
00:40:32,390 --> 00:40:30,880
toward or what the administration

1108
00:40:34,630 --> 00:40:32,400
posture is toward

1109
00:40:36,950 --> 00:40:34,640
china

1110
00:40:38,630 --> 00:40:36,960
at this point thank you

1111
00:40:41,510 --> 00:40:38,640
i always find it fascinating that people

1112
00:40:44,150 --> 00:40:41,520
believe that uh somehow we

1113
00:40:46,470 --> 00:40:44,160

weren't allowed to have non-us uh

1114
00:40:49,109 --> 00:40:46,480
entities in the critical path uh until

1115
00:40:50,870 --> 00:40:49,119
now when in fact we have been counting

1116
00:40:52,630 --> 00:40:50,880
on the russians and the soyuz in the

1117
00:40:53,990 --> 00:40:52,640
critical path

1118
00:40:56,790 --> 00:40:54,000
for

1119
00:40:58,790 --> 00:40:56,800
nearly a decade we have

1120
00:41:01,750 --> 00:40:58,800
in our in this administration

1121
00:41:05,670 --> 00:41:01,760
articulated a a policy which says we

1122
00:41:08,790 --> 00:41:05,680
accept that space is by its very nature

1123
00:41:10,150 --> 00:41:08,800
international we intend to work uh where

1124
00:41:12,790 --> 00:41:10,160
it makes sense with international

1125
00:41:16,069 --> 00:41:12,800
partners who have capabilities that will

1126
00:41:17,910 --> 00:41:16,079
allow us to ex expand uh not only

1127
00:41:19,510 --> 00:41:17,920
utilization of space station but going

1128
00:41:22,710 --> 00:41:19,520
beyond we have been working on space

1129
00:41:24,630 --> 00:41:22,720
science side with almost every space

1130
00:41:26,390 --> 00:41:24,640
science mission we have is a

1131
00:41:28,950 --> 00:41:26,400
collaborative international mission and

1132
00:41:29,910 --> 00:41:28,960
we believe as we explore and we work

1133
00:41:31,030 --> 00:41:29,920
through

1134
00:41:32,870 --> 00:41:31,040
existing

1135
00:41:35,270 --> 00:41:32,880
cooperative agreements that we have with

1136
00:41:38,630 --> 00:41:35,280
nations and new ones that this should be

1137
00:41:41,430 --> 00:41:38,640
done in a peaceful way as uh humanity

1138
00:41:44,230 --> 00:41:41,440

explores uh off this planet

1139
00:41:46,790 --> 00:41:44,240
i do believe that in in particular with

1140
00:41:48,870 --> 00:41:46,800
with china you mentioned that there

1141
00:41:50,710 --> 00:41:48,880
are concerns about working together

1142
00:41:53,670 --> 00:41:50,720
there's actually a law that nasa will

1143
00:41:57,910 --> 00:41:53,680
not be working directly with with the

1144
00:42:01,349 --> 00:41:57,920
chinese and we intend to obviously

1145
00:42:03,349 --> 00:42:01,359
adhere to that law we have agreements on

1146
00:42:05,190 --> 00:42:03,359
earth sciences data exchange from china

1147
00:42:06,710 --> 00:42:05,200
that is really all of the formal

1148
00:42:08,630 --> 00:42:06,720
agreements we

1149
00:42:11,510 --> 00:42:08,640
have had in the past and and we will

1150
00:42:14,069 --> 00:42:11,520
work with those partners that we can at

1151
00:42:16,150 --> 00:42:14,079
this time to explore and work on the

1152
00:42:18,390 --> 00:42:16,160
behalf of the american people to do that

1153
00:42:20,630 --> 00:42:18,400
in a way that provides the best benefit

1154
00:42:22,550 --> 00:42:20,640
to those of us here on earth

1155
00:42:24,390 --> 00:42:22,560
okay we have time unfortunately for only

1156
00:42:26,790 --> 00:42:24,400
two more questions and we're going to

1157
00:42:28,550 --> 00:42:26,800
finish up in the back here

1158
00:42:30,630 --> 00:42:28,560
cliff mcmurray norman transcript

1159
00:42:31,829 --> 00:42:30,640
question for lori garver those of us

1160
00:42:35,349 --> 00:42:31,839
that have been following the shuttle

1161
00:42:40,390 --> 00:42:38,309
see a pattern of one replacement program

1162
00:42:42,550 --> 00:42:40,400
after another proposed

1163
00:42:44,790 --> 00:42:42,560

living for a brief while on paper and

1164
00:42:46,790 --> 00:42:44,800
maybe a bit of hardware and dying after

1165
00:42:49,990 --> 00:42:46,800
about three to five years

1166
00:42:51,829 --> 00:42:50,000
so my question is how can nasa ever

1167
00:42:53,430 --> 00:42:51,839
progress anywhere if it cancels

1168
00:42:56,230 --> 00:42:53,440
everything after three to five years and

1169
00:42:59,750 --> 00:42:56,240
what makes this plan any different

1170
00:43:01,829 --> 00:42:59,760
yes uh obviously we have not found a way

1171
00:43:03,910 --> 00:43:01,839
in this nation or or others when we've

1172
00:43:07,030 --> 00:43:03,920
talked with our friends in russia they

1173
00:43:09,030 --> 00:43:07,040
have the same uh challenges of being

1174
00:43:11,270 --> 00:43:09,040
able to start a new program and start it

1175
00:43:13,430 --> 00:43:11,280
robustly while you are continuing with

1176
00:43:15,829 --> 00:43:13,440
an existing program programs

1177
00:43:17,670 --> 00:43:15,839
overlapping causes us to have budgets

1178
00:43:20,069 --> 00:43:17,680
that at least at this point in our

1179
00:43:23,190 --> 00:43:20,079
nation have been unsustainable

1180
00:43:24,950 --> 00:43:23,200
so we have had these gaps we have only

1181
00:43:27,510 --> 00:43:24,960
been able to start

1182
00:43:29,589 --> 00:43:27,520
major human space flight programs really

1183
00:43:31,430 --> 00:43:29,599
space station following on space shuttle

1184
00:43:34,150 --> 00:43:31,440
since apollo so we've been trying to

1185
00:43:35,750 --> 00:43:34,160
live apollo for 40 years setting a date

1186
00:43:37,910 --> 00:43:35,760
and a destination and trying to get

1187
00:43:39,670 --> 00:43:37,920
there and

1188
00:43:41,829 --> 00:43:39,680

my view is that

1189
00:43:44,630 --> 00:43:41,839
that was a successful time because of

1190
00:43:46,309 --> 00:43:44,640
the cold war not because of

1191
00:43:49,589 --> 00:43:46,319
the kinds of things that now we are

1192
00:43:52,470 --> 00:43:49,599
trying to argue for increased

1193
00:43:54,870 --> 00:43:52,480
stem education increased return from

1194
00:43:57,750 --> 00:43:54,880
science investment we know that we have

1195
00:44:00,309 --> 00:43:57,760
a half of a percent of this nation's

1196
00:44:03,030 --> 00:44:00,319
budget and we attempt and believe we do

1197
00:44:06,069 --> 00:44:03,040
have the best space program on the

1198
00:44:07,990 --> 00:44:06,079
planet we can for that we also invest

1199
00:44:10,069 --> 00:44:08,000
more than any other nation but we don't

1200
00:44:11,589 --> 00:44:10,079
have four percent of the budget anymore

1201
00:44:14,309 --> 00:44:11,599
like we did with apollo and even after

1202
00:44:16,470 --> 00:44:14,319
apollo we flew that out and had a large

1203
00:44:17,910 --> 00:44:16,480
gap of eight years before we could fly

1204
00:44:19,990 --> 00:44:17,920
humans kind of space we do not believe

1205
00:44:21,829 --> 00:44:20,000
we will have that gap and we do not

1206
00:44:24,150 --> 00:44:21,839
believe that we are starting again a

1207
00:44:26,150 --> 00:44:24,160
program that will only last on paper for

1208
00:44:27,349 --> 00:44:26,160
three or five years because we are

1209
00:44:28,710 --> 00:44:27,359
developing

1210
00:44:31,030 --> 00:44:28,720
those partnerships with the private

1211
00:44:33,270 --> 00:44:31,040
sector who again government

1212
00:44:35,270 --> 00:44:33,280
won't be the only customer we don't want

1213
00:44:37,109 --> 00:44:35,280

to depend just on taxpayers that's when

1214
00:44:39,510 --> 00:44:37,119
you end up having to change these

1215
00:44:41,910 --> 00:44:39,520
programs with election cycles so if you

1216
00:44:43,910 --> 00:44:41,920
can get your operational costs down get

1217
00:44:45,670 --> 00:44:43,920
more people being able to utilize these

1218
00:44:48,150 --> 00:44:45,680
systems get the government percentage

1219
00:44:50,630 --> 00:44:48,160
down we'll be able to sustain those

1220
00:44:52,710 --> 00:44:50,640
programs as we invest in those programs

1221
00:44:54,550 --> 00:44:52,720
that are uniquely nasa we're also trying

1222
00:44:56,390 --> 00:44:54,560
to work with other

1223
00:44:58,950 --> 00:44:56,400
us government agency partners so that

1224
00:45:01,670 --> 00:44:58,960
they can be utilized and again not just

1225
00:45:04,069 --> 00:45:01,680
a nasa program so that can be sustained

1226
00:45:06,470 --> 00:45:04,079
the whole capability driven budget is

1227
00:45:08,230 --> 00:45:06,480
precisely to do those things that the

1228
00:45:09,910 --> 00:45:08,240
government can do

1229
00:45:12,309 --> 00:45:09,920
so that future

1230
00:45:14,550 --> 00:45:12,319
congresses future presidents will be

1231
00:45:16,470 --> 00:45:14,560
able to take those capabilities and turn

1232
00:45:18,550 --> 00:45:16,480
them into the the program that they

1233
00:45:19,349 --> 00:45:18,560
believe takes advantage of

1234
00:45:29,349 --> 00:45:19,359
that

1235
00:45:32,630 --> 00:45:29,359
been developed but allows us to build a

1236
00:45:34,630 --> 00:45:32,640
capability to sustain human presence

1237
00:45:37,270 --> 00:45:34,640
beyond the earth orbit the days of

1238
00:45:39,589 --> 00:45:37,280

arbitrary dates destinations i think has

1239
00:45:42,550 --> 00:45:39,599
not been sustainable we are trying to

1240
00:45:44,710 --> 00:45:42,560
develop a program that truly continues

1241
00:45:46,470 --> 00:45:44,720
to make us a space faring civilization

1242
00:45:48,870 --> 00:45:46,480
building on the space station

1243
00:45:52,390 --> 00:45:48,880
building on the private sector and

1244
00:45:54,390 --> 00:45:52,400
building on the imagination of this

1245
00:45:56,230 --> 00:45:54,400
aerospace industry government-led team

1246
00:45:57,349 --> 00:45:56,240
that's going to explore beyond low earth

1247
00:45:58,870 --> 00:45:57,359
orbit

1248
00:46:01,750 --> 00:45:58,880
and we'll close with a question from

1249
00:46:03,589 --> 00:46:01,760
todd uh todd halberson of florida today

1250
00:46:06,870 --> 00:46:03,599
for lori

1251
00:46:09,670 --> 00:46:06,880
if one of the stated our stated uh goals

1252
00:46:12,550 --> 00:46:09,680
of nasa is to close the gap in american

1253
00:46:15,589 --> 00:46:12,560
capability and human space flight

1254
00:46:17,670 --> 00:46:15,599
i'm i'm just wondering why the budget

1255
00:46:18,550 --> 00:46:17,680
isn't weighted more towards commercial

1256
00:46:21,109 --> 00:46:18,560
crew

1257
00:46:23,190 --> 00:46:21,119
than it is toward like the multi-purpose

1258
00:46:25,589 --> 00:46:23,200
uh crew exploration vehicle why you

1259
00:46:27,510 --> 00:46:25,599
aren't giving ed more money than you're

1260
00:46:30,230 --> 00:46:27,520
giving mark

1261
00:46:33,589 --> 00:46:30,240
well we are doing the more difficult

1262
00:46:36,790 --> 00:46:33,599
thing with uh nasa of going farther and

1263
00:46:38,630 --> 00:46:36,800

truly truly believe that for a fraction

1264
00:46:39,670 --> 00:46:38,640
of the cost we can invest

1265
00:46:41,270 --> 00:46:39,680
with

1266
00:46:43,510 --> 00:46:41,280
our industry partners to be able to

1267
00:46:45,190 --> 00:46:43,520
leverage that investment to take

1268
00:46:48,630 --> 00:46:45,200
advantage of again what we've done for

1269
00:46:51,510 --> 00:46:48,640
for 50 years to try to

1270
00:46:53,829 --> 00:46:51,520
be a part of a market that will go

1271
00:46:57,109 --> 00:46:53,839
further i i don't think our intention is

1272
00:46:59,430 --> 00:46:57,119
to have so many nasa people and

1273
00:47:01,750 --> 00:46:59,440
as uh keith cowing's question earlier

1274
00:47:03,589 --> 00:47:01,760
stated uh the nasa way of doing business

1275
00:47:06,150 --> 00:47:03,599
to translate that to the private sector

1276
00:47:07,829 --> 00:47:06,160
would would be defeating our our cause

1277
00:47:10,230 --> 00:47:07,839
our cause is to

1278
00:47:13,030 --> 00:47:10,240
tap into that

1279
00:47:16,230 --> 00:47:13,040
entrepreneurialism to the industry that

1280
00:47:18,390 --> 00:47:16,240
really has learned from and many of them

1281
00:47:20,870 --> 00:47:18,400
are people who used to work either for

1282
00:47:22,309 --> 00:47:20,880
nasa or larger aerospace companies to do

1283
00:47:25,190 --> 00:47:22,319
things differently

1284
00:47:26,309 --> 00:47:25,200
so yes for a fraction of what the

1285
00:47:27,990 --> 00:47:26,319
government's going to spend on his

1286
00:47:29,670 --> 00:47:28,000
vehicles we're expecting a lot i think

1287
00:47:32,390 --> 00:47:29,680
it's one of the reasons we have concerns

1288
00:47:35,109 --> 00:47:32,400

about cuts to these programs we laid out

1289
00:47:37,349 --> 00:47:35,119
a budget and a plan and it will be very

1290
00:47:40,549 --> 00:47:37,359
very difficult to

1291
00:47:42,390 --> 00:47:40,559
shorten the gap without at least those

1292
00:47:43,990 --> 00:47:42,400
funds that we have requested being

1293
00:47:45,990 --> 00:47:44,000
sustained in the budget there are a lot

1294
00:47:47,670 --> 00:47:46,000
of challenges ahead

1295
00:47:50,150 --> 00:47:47,680
but we know that

1296
00:47:51,829 --> 00:47:50,160
if we can stay on this path we will be

1297
00:47:53,990 --> 00:47:51,839
able to have a really really bright

1298
00:47:54,870 --> 00:47:54,000
future

1299
00:47:56,309 --> 00:47:54,880
all right

1300
00:47:59,430 --> 00:47:56,319
thank you all very much for coming i

1301
00:48:01,670 --> 00:47:59,440
apologize that we've run out of time

1302
00:48:04,069 --> 00:48:01,680
tune in for fueling coverage of atlantis

1303
00:48:06,150 --> 00:48:04,079
launch beginning at 1 50 a.m on nasa

1304
00:48:08,549 --> 00:48:06,160
television and continuous launch

1305
00:48:11,270 --> 00:48:08,559
commentary begins at 6 30 a.m once again

1306
00:48:13,670 --> 00:48:11,280
liftoff is targeted for 11 26 a.m

1307
00:48:15,910 --> 00:48:13,680
eastern time you also can keep track of