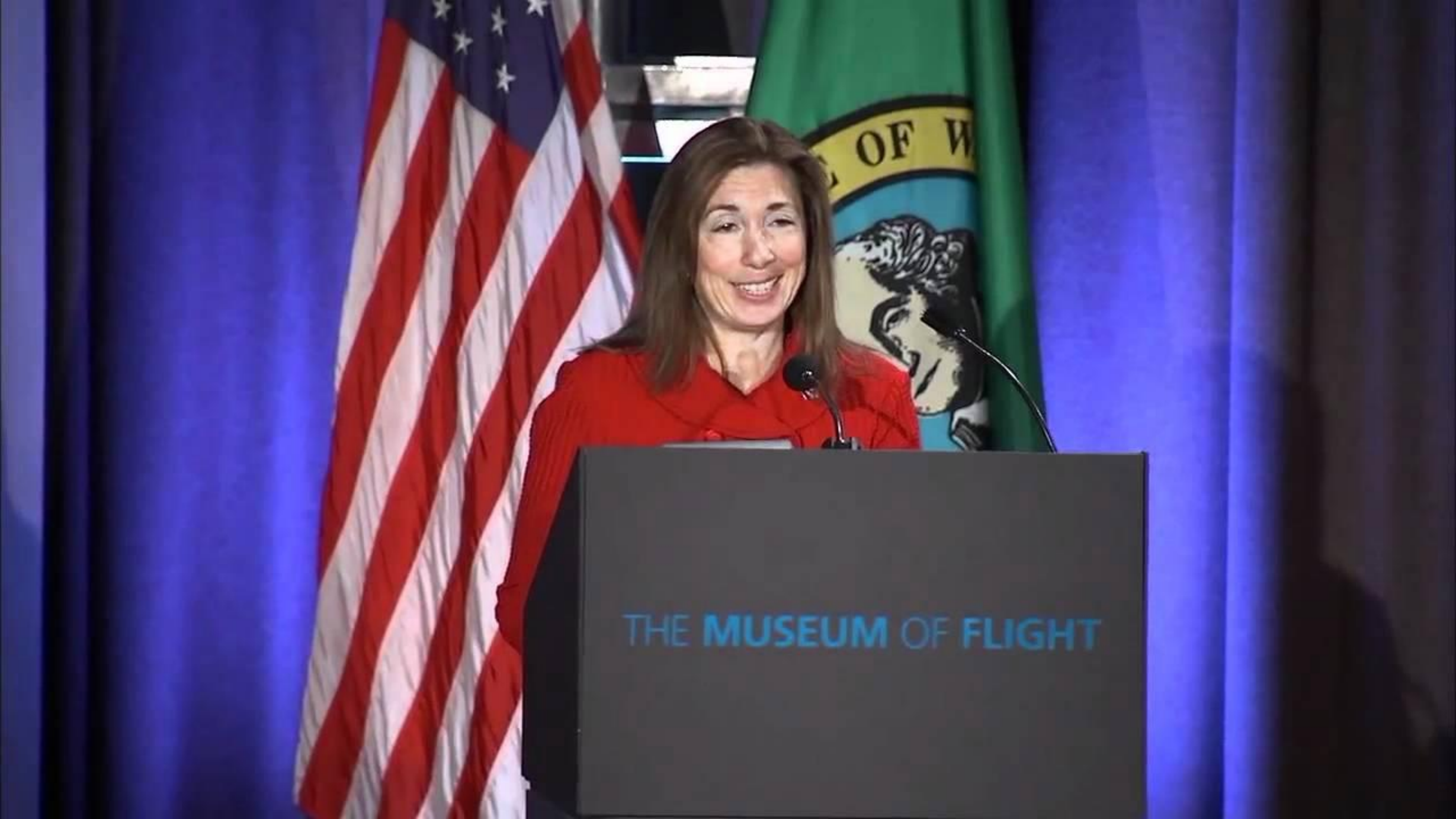
THE MUSEUM OF FLIGHT

1
00:00:05,190 --> 00:00:03,110
good morning and welcome to this the

2
00:00:07,190 --> 00:00:05,200
museum of flight here in seattle for

3
00:00:08,310 --> 00:00:07,200
today's nasa future forum thank you all

4
00:00:10,390 --> 00:00:08,320
for coming

5
00:00:12,310 --> 00:00:10,400
and thank you for those watching on nasa

6
00:00:14,150 --> 00:00:12,320
television which is being aired on cable

7
00:00:16,710 --> 00:00:14,160
stations throughout the country

8
00:00:20,790 --> 00:00:16,720
you can also watch today's future forum

9
00:00:24,390 --> 00:00:22,630
ntv

10
00:00:25,910 --> 00:00:24,400
for today's future forum we're hoping to

11
00:00:27,670 --> 00:00:25,920
have a discussion with people here in

12
00:00:29,990 --> 00:00:27,680
the audience but also with people across

13
00:00:31,189 --> 00:00:30,000

america through the use of social media

14
00:00:32,870 --> 00:00:31,199
and twitter

15
00:00:34,709 --> 00:00:32,880
if you have a twitter account and you'd

16
00:00:36,910 --> 00:00:34,719
like to follow today's discussion please

17
00:00:38,549 --> 00:00:36,920
join us at hashtag

18
00:00:40,470 --> 00:00:38,559
poundnasafuture

19
00:00:41,830 --> 00:00:40,480
you can also tweet questions to our

20
00:00:44,470 --> 00:00:41,840
twitter account at

21
00:00:45,830 --> 00:00:44,480
nasa underscore technology

22
00:00:48,549 --> 00:00:45,840
throughout the program we'll be

23
00:00:49,990 --> 00:00:48,559
monitoring those both the hashtag and

24
00:00:52,709 --> 00:00:50,000
the twitter account

25
00:00:55,110 --> 00:00:52,719
we'll be taking your questions and if we

26
00:00:56,950 --> 00:00:55,120
have time depending on the participation

27
00:00:58,549 --> 00:00:56,960
here in the audience we'll be able to

28
00:01:00,069 --> 00:00:58,559
take your questions and ask the

29
00:01:01,990 --> 00:01:00,079
panelists

30
00:01:04,229 --> 00:01:02,000
uh today we have a great program lined

31
00:01:07,270 --> 00:01:04,239
up we also have a wonderful group of

32
00:01:08,870 --> 00:01:07,280
people visiting here in in seattle

33
00:01:16,310 --> 00:01:08,880
uh it's an honor to have here in the

34
00:01:20,070 --> 00:01:18,390
uh bill is a friend of ours and is the

35
00:01:21,350 --> 00:01:20,080
executive director of the planetary

36
00:01:24,070 --> 00:01:21,360
society

37
00:01:26,630 --> 00:01:24,080
uh we also have coming today uh though i

38
00:01:28,630 --> 00:01:26,640

don't see him here yet emile de cou who

39
00:01:30,230 --> 00:01:28,640
is a

40
00:01:32,550 --> 00:01:30,240
associate director of the national

41
00:01:34,550 --> 00:01:32,560
symphony orchestra and more recently and

42
00:01:36,789 --> 00:01:34,560
more familiar to folks here in seattle

43
00:01:39,510 --> 00:01:36,799
the music director for the pacific

44
00:01:41,109 --> 00:01:39,520
northwest ballet

45
00:01:42,630 --> 00:01:41,119
uh it's a great honor to be here at the

46
00:01:45,510 --> 00:01:42,640
museum flight

47
00:01:47,030 --> 00:01:45,520
the museum has a rich history with nasa

48
00:01:50,469 --> 00:01:47,040
they've hosted a future forum here

49
00:01:52,469 --> 00:01:50,479
before and we also have as our host uh

50
00:01:55,190 --> 00:01:52,479
the museum's director executive director

51
00:01:57,030 --> 00:01:55,200
doug king doug you may know from the

52
00:01:59,109 --> 00:01:57,040
museum and some of you may know him from

53
00:02:01,270 --> 00:01:59,119
when he was the executive director of

54
00:02:03,590 --> 00:02:01,280
the st louis science center the fourth

55
00:02:06,870 --> 00:02:03,600
largest science center in the country

56
00:02:08,469 --> 00:02:06,880
before that doug also was the executive

57
00:02:10,070 --> 00:02:08,479
director of the challenger center in

58
00:02:12,070 --> 00:02:10,080
washington dc

59
00:02:14,309 --> 00:02:12,080
the museum has been wonderful in hosting

60
00:02:22,710 --> 00:02:14,319
us and it's my honor to introduce doug

61
00:02:26,229 --> 00:02:24,869
thank you david and thank you everyone

62
00:02:28,229 --> 00:02:26,239
for being here

63
00:02:30,390 --> 00:02:28,239

it is a beautiful day to talk about

64
00:02:31,670 --> 00:02:30,400
space

65
00:02:33,750 --> 00:02:31,680
i hope that while you're here at the

66
00:02:35,990 --> 00:02:33,760
museum you'll get to visit a little bit

67
00:02:38,470 --> 00:02:36,000
and i'll point out briefly that you are

68
00:02:40,309 --> 00:02:38,480
welcome to walk around to the left into

69
00:02:41,350 --> 00:02:40,319
a wonderful space exhibit that already

70
00:02:44,229 --> 00:02:41,360
exists

71
00:02:46,309 --> 00:02:44,239
from the very beginnings through apollo

72
00:02:48,470 --> 00:02:46,319
beyond that is our great gallery

73
00:02:49,589 --> 00:02:48,480
anchored by the sr-71 blackbird in the

74
00:02:51,110 --> 00:02:49,599
middle for those of you who love

75
00:02:52,630 --> 00:02:51,120
airplanes if you walk straight out the

76
00:02:54,390 --> 00:02:52,640
front of the theater you'll find the red

77
00:02:56,470 --> 00:02:54,400
barn boeing's first manufacturing

78
00:02:57,910 --> 00:02:56,480
facility where people made airplanes out

79
00:02:59,990 --> 00:02:57,920
of wood and

80
00:03:01,990 --> 00:03:00,000
cloth on beyond that the personal

81
00:03:03,830 --> 00:03:02,000
courage wing the great story of world

82
00:03:05,750 --> 00:03:03,840
war one and world war ii and the people

83
00:03:07,750 --> 00:03:05,760
who fought them in the air

84
00:03:09,350 --> 00:03:07,760
and across the bridge that you'll cross

85
00:03:12,390 --> 00:03:09,360
on the way to lunch

86
00:03:15,750 --> 00:03:12,400
air park where there are the first 7 37

87
00:03:17,430 --> 00:03:15,760
7 27 7 47 and you can go aboard air

88
00:03:19,270 --> 00:03:17,440

force one and a concord if you'd like a

89
00:03:20,710 --> 00:03:19,280
little later this afternoon and i should

90
00:03:22,470 --> 00:03:20,720
point out just beyond the tree line

91
00:03:24,149 --> 00:03:22,480
there you'll see some construction the

92
00:03:25,750 --> 00:03:24,159
future home of aviation high school

93
00:03:33,350 --> 00:03:25,760
which will be proud to welcome to the

94
00:03:36,869 --> 00:03:35,509
and this afternoon when we go to lunch

95
00:03:39,030 --> 00:03:36,879
in the panel this afternoon and the

96
00:03:41,030 --> 00:03:39,040
student poster sessions you'll be in our

97
00:03:43,350 --> 00:03:41,040
new space gallery we are thrilled about

98
00:03:45,430 --> 00:03:43,360
that facility and what's coming as the

99
00:03:47,110 --> 00:03:45,440
center point the full fuselage trainer

100
00:03:49,270 --> 00:03:47,120
from building nine at johnson space

101
00:03:52,229 --> 00:03:49,280
center used by all the astronauts to

102
00:03:54,390 --> 00:03:52,239
train uh one of the artifacts that will

103
00:03:56,149 --> 00:03:54,400
help tell the story of the last 30 years

104
00:03:57,509 --> 00:03:56,159
of space what have we accomplished how

105
00:03:58,789 --> 00:03:57,519
have we learned to live and work there

106
00:04:00,630 --> 00:03:58,799
routinely

107
00:04:02,710 --> 00:04:00,640
why can we take for granted having a

108
00:04:03,750 --> 00:04:02,720
space station in orbit today

109
00:04:06,630 --> 00:04:03,760
and

110
00:04:09,270 --> 00:04:06,640
what can we talk about what comes next

111
00:04:11,110 --> 00:04:09,280
so in that gallery we'll be telling both

112
00:04:12,949 --> 00:04:11,120
the past present

113
00:04:15,750 --> 00:04:12,959

and challenging young people about the

114
00:04:17,430 --> 00:04:15,760
future of space that all starts today in

115
00:04:19,030 --> 00:04:17,440
this forum

116
00:04:22,230 --> 00:04:19,040
you know

117
00:04:24,310 --> 00:04:22,240
why is this important well the

118
00:04:26,310 --> 00:04:24,320
the real mission of this museum is to

119
00:04:28,550 --> 00:04:26,320
collect and preserve and document and

120
00:04:30,629 --> 00:04:28,560
interpret airplanes and spacecraft and

121
00:04:33,350 --> 00:04:30,639
artifacts and photographs and so on that

122
00:04:34,950 --> 00:04:33,360
will help future generations understand

123
00:04:36,870 --> 00:04:34,960
what it was really like to live through

124
00:04:39,590 --> 00:04:36,880
this first century of flight

125
00:04:41,510 --> 00:04:39,600
and why is that important i mean

126
00:04:43,909 --> 00:04:41,520
things happen every day in our lives but

127
00:04:45,350 --> 00:04:43,919
when we look back and historians look

128
00:04:47,030 --> 00:04:45,360
back on this era

129
00:04:49,189 --> 00:04:47,040
flight has changed the world in the last

130
00:04:51,670 --> 00:04:49,199
hundred years from literally an eye

131
00:04:53,990 --> 00:04:51,680
blink of history a short flight on the

132
00:04:55,670 --> 00:04:54,000
hills of kitty hawk

133
00:04:57,270 --> 00:04:55,680
to taking for granted that we can get on

134
00:04:59,830 --> 00:04:57,280
an airplane today

135
00:05:01,909 --> 00:04:59,840
from 40 years ago taking a step off the

136
00:05:04,150 --> 00:05:01,919
planet for the first time to being able

137
00:05:07,510 --> 00:05:04,160
to at least talk about today making it

138
00:05:09,909 --> 00:05:07,520

routine for all of us to go to space

139
00:05:11,670 --> 00:05:09,919
in a historical eye blink as i said this

140
00:05:13,110 --> 00:05:11,680
is this happened in a hundred years

141
00:05:15,029 --> 00:05:13,120
think about for the young people in the

142
00:05:16,790 --> 00:05:15,039
audience what the next hundred years can

143
00:05:20,230 --> 00:05:16,800
mean and our jobs to help them

144
00:05:22,550 --> 00:05:20,240
understand it so they can shape it

145
00:05:25,590 --> 00:05:22,560
someone said to me the other day

146
00:05:27,990 --> 00:05:25,600
what will historians write about our era

147
00:05:29,670 --> 00:05:28,000
a thousand years from now a thousand

148
00:05:31,749 --> 00:05:29,680
years from now that's maybe a little

149
00:05:33,270 --> 00:05:31,759
hard to contemplate but they're probably

150
00:05:35,189 --> 00:05:33,280
not going to be engaged in the things

151
00:05:36,710 --> 00:05:35,199
that take up so much of our time today

152
00:05:38,870 --> 00:05:36,720
who will win the next primary what are

153
00:05:40,950 --> 00:05:38,880
we going to do about health care

154
00:05:42,550 --> 00:05:40,960
who's going to win the super bowl

155
00:05:44,230 --> 00:05:42,560
i was devastated yesterday that albert

156
00:05:45,990 --> 00:05:44,240
pujols left the saint louis cardinals

157
00:05:47,510 --> 00:05:46,000
but you know that's probably not a

158
00:05:48,710 --> 00:05:47,520
historical item

159
00:05:50,950 --> 00:05:48,720
what they'll write about a thousand

160
00:05:53,670 --> 00:05:50,960
years from now is this is the era when

161
00:05:56,390 --> 00:05:53,680
humans first left the planet first into

162
00:05:58,790 --> 00:05:56,400
the atmosphere and then beyond

163
00:06:00,950 --> 00:05:58,800

we don't know the exact timetable but we

164
00:06:02,550 --> 00:06:00,960
get to participate in it and we get to

165
00:06:05,189 --> 00:06:02,560
help create it

166
00:06:06,550 --> 00:06:05,199
how often how how unusable a moment is

167
00:06:08,550 --> 00:06:06,560
it when you know that you're really

168
00:06:10,469 --> 00:06:08,560
experiencing history and that we're in

169
00:06:12,390 --> 00:06:10,479
the room today with the people that will

170
00:06:14,390 --> 00:06:12,400
make it happen

171
00:06:16,469 --> 00:06:14,400
we're extremely grateful to nasa and our

172
00:06:19,110 --> 00:06:16,479
other partners for bringing those people

173
00:06:20,710 --> 00:06:19,120
here for bringing all of you here

174
00:06:22,070 --> 00:06:20,720
mike green and derek wang at nasa

175
00:06:24,629 --> 00:06:22,080
headquarters have been just great to

176
00:06:27,270 --> 00:06:24,639
work with and put this program together

177
00:06:29,749 --> 00:06:27,280
they've set the stage for all of us

178
00:06:31,749 --> 00:06:29,759
to listen to ask questions to try to

179
00:06:33,029 --> 00:06:31,759
understand so that we can tell the story

180
00:06:34,950 --> 00:06:33,039
to others

181
00:06:35,990 --> 00:06:34,960
you see the the other reason our museum

182
00:06:37,670 --> 00:06:36,000
exists

183
00:06:39,909 --> 00:06:37,680
is to inspire young people who will

184
00:06:41,590 --> 00:06:39,919
actually live that future

185
00:06:44,710 --> 00:06:41,600
we have students here today from our

186
00:06:47,510 --> 00:06:44,720
nasa washington space grant consortium

187
00:06:49,110 --> 00:06:47,520
from our aviation high school

188
00:06:51,110 --> 00:06:49,120

from

189
00:06:52,390 --> 00:06:51,120
our washington nasa washington aerospace

190
00:06:53,830 --> 00:06:52,400
scholars program you'll meet them

191
00:06:55,270 --> 00:06:53,840
throughout the day they're volunteering

192
00:06:57,189 --> 00:06:55,280
and they'll be doing poster sessions

193
00:06:58,950 --> 00:06:57,199
this afternoon and wanting to meet all

194
00:07:00,629 --> 00:06:58,960
of you

195
00:07:03,029 --> 00:07:00,639
they want to understand what the future

196
00:07:05,350 --> 00:07:03,039
holds for them why do those of you in

197
00:07:07,350 --> 00:07:05,360
the room think it's a valuable thing to

198
00:07:08,390 --> 00:07:07,360
invest your time your energy and your

199
00:07:10,469 --> 00:07:08,400
careers

200
00:07:12,950 --> 00:07:10,479
in the future of space

201
00:07:14,710 --> 00:07:12,960
and they're typical of the 140 000 young

202
00:07:16,390 --> 00:07:14,720
people who participate in educational

203
00:07:17,510 --> 00:07:16,400
programs here at the museum

204
00:07:19,670 --> 00:07:17,520
this year

205
00:07:21,670 --> 00:07:19,680
and the literally millions in other

206
00:07:23,670 --> 00:07:21,680
museums around the country

207
00:07:26,390 --> 00:07:23,680
schools that are still as interested as

208
00:07:27,510 --> 00:07:26,400
any of us have ever been in what comes

209
00:07:29,350 --> 00:07:27,520
next

210
00:07:31,909 --> 00:07:29,360
we've invited other museums and media

211
00:07:33,749 --> 00:07:31,919
and educational partners here to listen

212
00:07:36,150 --> 00:07:33,759
and to talk about how we can all tell

213
00:07:38,390 --> 00:07:36,160

the story better to the public

214
00:07:40,469 --> 00:07:38,400
that group had a great meeting yesterday

215
00:07:42,710 --> 00:07:40,479
here we thank all of them for coming and

216
00:07:45,110 --> 00:07:42,720
together they'll help shape the exhibits

217
00:07:46,150 --> 00:07:45,120
and programs that literally reach

218
00:07:48,469 --> 00:07:46,160
millions

219
00:07:50,869 --> 00:07:48,479
it all starts here today

220
00:07:54,309 --> 00:07:50,879
so let's get on with it

221
00:07:55,430 --> 00:07:54,319
it's a great day to talk about space

222
00:07:57,670 --> 00:07:55,440
my job

223
00:07:59,830 --> 00:07:57,680
is really an honor i get to introduce

224
00:08:01,749 --> 00:07:59,840
our keynote speaker

225
00:08:04,309 --> 00:08:01,759
lori garver is the deputy director

226
00:08:05,830 --> 00:08:04,319
excuse me deputy administrator of nasa

227
00:08:08,390 --> 00:08:05,840
she's appointed by president barack

228
00:08:09,909 --> 00:08:08,400
obama and confirmed by the senate in

229
00:08:12,070 --> 00:08:09,919
2009

230
00:08:13,749 --> 00:08:12,080
as deputy administrator

231
00:08:15,189 --> 00:08:13,759
laurie's second in command she works

232
00:08:17,270 --> 00:08:15,199
closely with the administrator to

233
00:08:19,189 --> 00:08:17,280
provide overall leadership in planning

234
00:08:20,230 --> 00:08:19,199
policy direction

235
00:08:22,150 --> 00:08:20,240
together

236
00:08:24,150 --> 00:08:22,160
she represents nasa to the executive

237
00:08:26,070 --> 00:08:24,160
office of the president to congress the

238
00:08:28,309 --> 00:08:26,080

heads of government agencies

239
00:08:30,790 --> 00:08:28,319
international organizations and external

240
00:08:33,509 --> 00:08:30,800
organizations and communities she also

241
00:08:35,269 --> 00:08:33,519
oversees nasa's functional offices

242
00:08:37,990 --> 00:08:35,279
it's her second stint with nasa she

243
00:08:39,909 --> 00:08:38,000
worked there from 1996 to 2001 and has

244
00:08:42,389 --> 00:08:39,919
been involved as a space advocate and

245
00:08:43,829 --> 00:08:42,399
advisor and partnered with lots of us

246
00:08:46,230 --> 00:08:43,839
over the years

247
00:08:48,150 --> 00:08:46,240
personally i'd like to thank her for her

248
00:08:50,630 --> 00:08:48,160
incredible commitment to education that

249
00:08:52,630 --> 00:08:50,640
she's demonstrated in so many ways

250
00:08:54,949 --> 00:08:52,640
and for that continuation that

251
00:08:56,550 --> 00:08:54,959
commitment at nasa education is one of

252
00:08:59,269 --> 00:08:56,560
the things that the agency one of the

253
00:09:01,269 --> 00:08:59,279
many things the agency does very right

254
00:09:03,269 --> 00:09:01,279
and she's a tremendous help to all of us

255
00:09:12,949 --> 00:09:03,279
in that arena ladies and gentlemen

256
00:09:18,870 --> 00:09:15,590
thank you very much doug a wonderful

257
00:09:22,550 --> 00:09:18,880
introduction uh the museum is so lucky

258
00:09:24,389 --> 00:09:22,560
to have you this has been of course a

259
00:09:26,790 --> 00:09:24,399
partnership for a long time with the

260
00:09:29,829 --> 00:09:26,800
museum of flight and nasa and we look

261
00:09:32,230 --> 00:09:29,839
forward to having you help continue to

262
00:09:33,990 --> 00:09:32,240
tell our story not just of our past but

263
00:09:35,750 --> 00:09:34,000

of our very very

264
00:09:37,670 --> 00:09:35,760
vibrant future which is what we're here

265
00:09:39,350 --> 00:09:37,680
to talk about today the future forum so

266
00:09:41,030 --> 00:09:39,360
i want to thank the nasa team who helped

267
00:09:43,670 --> 00:09:41,040
pulled this together when we talked

268
00:09:47,750 --> 00:09:43,680
about where to have our second future

269
00:09:51,110 --> 00:09:47,760
forum uh this was the obvious place and

270
00:09:54,150 --> 00:09:51,120
uh the entire team dave steeds for our

271
00:09:56,550 --> 00:09:54,160
mc mike green derek wang

272
00:09:58,310 --> 00:09:56,560
our technology office is led by joe

273
00:10:00,470 --> 00:09:58,320
parish who you'll hear from

274
00:10:02,949 --> 00:10:00,480
later is all

275
00:10:06,790 --> 00:10:02,959
working so hard every day to bring you

276
00:10:07,910 --> 00:10:06,800
that amazing value of nasa so

277
00:10:14,069 --> 00:10:07,920
we

278
00:10:16,230 --> 00:10:14,079
this new era of space travel

279
00:10:18,870 --> 00:10:16,240
that we're celebrating it in one of the

280
00:10:21,670 --> 00:10:18,880
world's finest air and space museums

281
00:10:25,910 --> 00:10:23,590
one of the things about seattle that is

282
00:10:27,910 --> 00:10:25,920
unique is it is home to one of our

283
00:10:29,910 --> 00:10:27,920
oldest partners the

284
00:10:33,190 --> 00:10:29,920
boeing who you also hear from later

285
00:10:36,310 --> 00:10:33,200
today and one of our newest blue origins

286
00:10:38,550 --> 00:10:36,320
we hear from today as well this shows

287
00:10:39,670 --> 00:10:38,560
the very robust uh

288
00:10:42,550 --> 00:10:39,680

local

289
00:10:43,509 --> 00:10:42,560
work that you're doing here to help not

290
00:10:46,230 --> 00:10:43,519
only

291
00:10:49,269 --> 00:10:46,240
usher in the future but help take us to

292
00:10:50,949 --> 00:10:49,279
new places beyond so i see so many

293
00:10:52,949 --> 00:10:50,959
friends in this room as we're pointed

294
00:10:55,430 --> 00:10:52,959
out i have to give my own personal shout

295
00:10:58,069 --> 00:10:55,440
out to bill nye who has helped explain

296
00:11:02,710 --> 00:10:58,079
the value of what we're doing at nasa

297
00:11:05,430 --> 00:11:02,720
for decades i know that uh my children

298
00:11:07,269 --> 00:11:05,440
have been inspired by him and when their

299
00:11:09,910 --> 00:11:07,279
teachers didn't feel like teaching that

300
00:11:11,990 --> 00:11:09,920
day and turned on the television and put

301
00:11:14,710 --> 00:11:12,000
you on they those are some of the days

302
00:11:17,190 --> 00:11:14,720
that they remember the most so much so

303
00:11:20,310 --> 00:11:17,200
that my 19 year old's band is named bill

304
00:11:21,829 --> 00:11:20,320
nyan the science guys something that i

305
00:11:23,910 --> 00:11:21,839
uh

306
00:11:26,069 --> 00:11:23,920
and bill if you would please tweet that

307
00:11:26,949 --> 00:11:26,079
that would give me a lot of mom points

308
00:11:30,870 --> 00:11:26,959
because

309
00:11:32,630 --> 00:11:30,880
he wanted to make sure that uh you knew

310
00:11:35,269 --> 00:11:32,640
and that it was okay my husband's

311
00:11:37,670 --> 00:11:35,279
concerned uh they might get sued

312
00:11:37,680 --> 00:11:48,870
well you know

313
00:11:52,150 --> 00:11:50,710

it is true and you will end up on their

314
00:11:53,590 --> 00:11:52,160
facebook page

315
00:11:55,590 --> 00:11:53,600
uh

316
00:11:57,829 --> 00:11:55,600
but we're all here really to learn from

317
00:12:00,069 --> 00:11:57,839
each other just like we have for all

318
00:12:02,470 --> 00:12:00,079
these years how we can more effectively

319
00:12:04,870 --> 00:12:02,480
advance personal and commercial space

320
00:12:07,030 --> 00:12:04,880
flight how we can more effectively

321
00:12:09,190 --> 00:12:07,040
transition the technologies that we

322
00:12:11,829 --> 00:12:09,200
develop at nasa to the private sector to

323
00:12:14,629 --> 00:12:11,839
create those high paying jobs and open

324
00:12:17,509 --> 00:12:14,639
up endless possibilities for economic

325
00:12:20,310 --> 00:12:17,519
growth together we're truly developing

326
00:12:23,350 --> 00:12:20,320
an industry that until recently had been

327
00:12:26,629 --> 00:12:23,360
largely science fiction but now that it

328
00:12:27,750 --> 00:12:26,639
stands poised to open the the the new

329
00:12:30,310 --> 00:12:27,760
frontier

330
00:12:31,590 --> 00:12:30,320
that next chapter in human space

331
00:12:33,430 --> 00:12:31,600
development

332
00:12:35,829 --> 00:12:33,440
uh but first a little background as you

333
00:12:38,230 --> 00:12:35,839
know we did retire the space shuttle

334
00:12:40,069 --> 00:12:38,240
program early this year in july with the

335
00:12:41,670 --> 00:12:40,079
last landing of over a 30-year

336
00:12:43,750 --> 00:12:41,680
successful program

337
00:12:46,389 --> 00:12:43,760
many of you in this room helped work on

338
00:12:48,389 --> 00:12:46,399

that program and we thank you

339
00:12:50,949 --> 00:12:48,399
contrary to what you've heard

340
00:12:53,190 --> 00:12:50,959
as churchill might have put it it is not

341
00:12:55,670 --> 00:12:53,200
the end it's not even the beginning of

342
00:12:57,030 --> 00:12:55,680
the end but perhaps it's the end of the

343
00:13:02,710 --> 00:12:57,040
beginning

344
00:13:05,110 --> 00:13:02,720
the excitement and adventure is just

345
00:13:08,150 --> 00:13:05,120
beginning and the opening of the space

346
00:13:10,310 --> 00:13:08,160
frontier is just beginning

347
00:13:13,509 --> 00:13:10,320
the president and the congress have

348
00:13:15,430 --> 00:13:13,519
supported a program which is now

349
00:13:17,030 --> 00:13:15,440
making a renewed commitment to human

350
00:13:20,150 --> 00:13:17,040
space flight and we're taking the

351
00:13:22,790 --> 00:13:20,160
necessary if difficult steps today to

352
00:13:23,750 --> 00:13:22,800
ensure america's preeminence for years

353
00:13:24,870 --> 00:13:23,760
to come

354
00:13:27,190 --> 00:13:24,880
after all

355
00:13:29,110 --> 00:13:27,200
what is nasa there for our vision is to

356
00:13:31,750 --> 00:13:29,120
reach for new heights

357
00:13:35,190 --> 00:13:31,760
and reveal the unknown

358
00:13:37,430 --> 00:13:35,200
so that what we learn

359
00:13:40,710 --> 00:13:37,440
from doing these things never been done

360
00:13:43,430 --> 00:13:40,720
before will benefit all humankind

361
00:13:45,750 --> 00:13:43,440
so our plan includes nasa developing a

362
00:13:47,910 --> 00:13:45,760
deep space rocket that will take

363
00:13:49,430 --> 00:13:47,920

astronauts farther into space than we've

364
00:13:51,750 --> 00:13:49,440
ever gone before

365
00:13:55,030 --> 00:13:51,760
coupled with the work already occurring

366
00:13:56,949 --> 00:13:55,040
on the multi-purpose crew vehicle

367
00:13:57,829 --> 00:13:56,959
that will allow us to take that next

368
00:13:59,990 --> 00:13:57,839
leap

369
00:14:03,110 --> 00:14:00,000
into deep space exploration while at the

370
00:14:06,389 --> 00:14:03,120
same time continuing to create

371
00:14:07,829 --> 00:14:06,399
good paying jobs in the united states

372
00:14:10,150 --> 00:14:07,839
the international space station will

373
00:14:12,150 --> 00:14:10,160
continue to be that center piece of our

374
00:14:14,550 --> 00:14:12,160
human space flight activities through at

375
00:14:16,949 --> 00:14:14,560
least 2020 the research and technology

376
00:14:19,110 --> 00:14:16,959
we're doing on the iss providing

377
00:14:21,189 --> 00:14:19,120
breakthroughs to enable not only our

378
00:14:23,110 --> 00:14:21,199
future travel of our

379
00:14:25,910 --> 00:14:23,120
astronauts to destinations beyond low

380
00:14:28,150 --> 00:14:25,920
earth orbit as well as returning real

381
00:14:30,389 --> 00:14:28,160
benefits to those of us at home we've

382
00:14:33,509 --> 00:14:30,399
established a non-profit organization to

383
00:14:35,269 --> 00:14:33,519
manage our non-nasa research on the u.s

384
00:14:37,509 --> 00:14:35,279
portion of the international space

385
00:14:40,470 --> 00:14:37,519
station so that we can really fully

386
00:14:42,389 --> 00:14:40,480
utilize this national laboratory and as

387
00:14:45,030 --> 00:14:42,399
doug king said in

388
00:14:46,790 --> 00:14:45,040

his opening remarks when we look back a

389
00:14:49,269 --> 00:14:46,800
thousand years at what we'll be doing to

390
00:14:52,550 --> 00:14:49,279
me the international space station will

391
00:14:55,269 --> 00:14:52,560
serve as that time when for 12 years now

392
00:14:57,509 --> 00:14:55,279
but hopefully indefinitely

393
00:14:59,750 --> 00:14:57,519
has been the first time in our history

394
00:15:01,030 --> 00:14:59,760
that not every

395
00:15:04,069 --> 00:15:01,040
human

396
00:15:05,750 --> 00:15:04,079
is residing on one planet we have had

397
00:15:07,990 --> 00:15:05,760
people living and working in space

398
00:15:09,910 --> 00:15:08,000
permanently for over 12 years now and

399
00:15:12,069 --> 00:15:09,920
there will hopefully and one of the

400
00:15:14,230 --> 00:15:12,079
things our program is committed to and

401
00:15:15,110 --> 00:15:14,240
i'm personally committed to is making

402
00:15:17,030 --> 00:15:15,120
sure

403
00:15:20,150 --> 00:15:17,040
that does not happen again that we

404
00:15:21,350 --> 00:15:20,160
become this exploring and expanding

405
00:15:23,990 --> 00:15:21,360
species

406
00:15:26,150 --> 00:15:24,000
so our destinations beyond low earth

407
00:15:29,430 --> 00:15:26,160
orbit remain the same and remain

408
00:15:31,910 --> 00:15:29,440
ambitious we intend to

409
00:15:33,749 --> 00:15:31,920
go beyond the moon for the first time to

410
00:15:36,069 --> 00:15:33,759
an asteroid and the president has laid

411
00:15:38,949 --> 00:15:36,079
out and then on to mars we're actually

412
00:15:41,990 --> 00:15:38,959
hiring new astronauts for these missions

413
00:15:44,629 --> 00:15:42,000

we just on november 4th

414
00:15:46,870 --> 00:15:44,639
and inducted nine new astronauts into

415
00:15:50,230 --> 00:15:46,880
the astronaut corps and they're the

416
00:15:52,629 --> 00:15:50,240
first post shuttle astronaut class so

417
00:15:54,150 --> 00:15:52,639
they're being trained to explore space

418
00:15:56,389 --> 00:15:54,160
first of all of course to go to the

419
00:15:59,829 --> 00:15:56,399
space station for extended missions and

420
00:16:02,470 --> 00:15:59,839
then go beyond on november 15th we open

421
00:16:04,230 --> 00:16:02,480
the next round of recruitment for the

422
00:16:07,430 --> 00:16:04,240
class of astronauts that would begin

423
00:16:09,269 --> 00:16:07,440
their initial training in 2013.

424
00:16:12,230 --> 00:16:09,279
these in fact may be those first

425
00:16:14,949 --> 00:16:12,240
astronauts who go to an asteroid for the

426
00:16:17,269 --> 00:16:14,959
first time and ultimately to mars so

427
00:16:19,430 --> 00:16:17,279
human space flight alive and well at

428
00:16:23,030 --> 00:16:19,440
nasa in addition

429
00:16:25,990 --> 00:16:23,040
our science efforts continue unabated

430
00:16:27,990 --> 00:16:26,000
just two weeks ago on november 26th

431
00:16:29,269 --> 00:16:28,000
from cape canaveral we launched the most

432
00:16:31,590 --> 00:16:29,279
advanced

433
00:16:34,310 --> 00:16:31,600
mobile robotic laboratory ever built

434
00:16:37,749 --> 00:16:34,320
it's headed to mars on an eighth month

435
00:16:39,670 --> 00:16:37,759
mission aptly named curiosity the rover

436
00:16:42,150 --> 00:16:39,680
the size of a volkswagen beetle will

437
00:16:44,870 --> 00:16:42,160
land on the surface of the red planet

438
00:16:47,829 --> 00:16:44,880

and next august begin seeking answers to

439
00:16:50,550 --> 00:16:47,839
those planetary puzzles about life on

440
00:16:52,310 --> 00:16:50,560
mars we're continuing to work on the

441
00:16:54,230 --> 00:16:52,320
next generation of

442
00:16:57,110 --> 00:16:54,240
observatories in space the webb

443
00:16:59,670 --> 00:16:57,120
telescope it will be the most powerful

444
00:17:01,829 --> 00:16:59,680
space telescope ever built and observe

445
00:17:03,990 --> 00:17:01,839
the most distant objects in the universe

446
00:17:07,029 --> 00:17:04,000
providing images of the first galaxies

447
00:17:10,710 --> 00:17:07,039
ever formed and study planets that we

448
00:17:13,909 --> 00:17:10,720
now know exist around distant stars

449
00:17:15,909 --> 00:17:13,919
other sciences even now just underway

450
00:17:17,590 --> 00:17:15,919
include juno to jupiter

451
00:17:19,750 --> 00:17:17,600
grail to the moon

452
00:17:22,470 --> 00:17:19,760
dawn's orbit of a giant asteroid and

453
00:17:25,189 --> 00:17:22,480
messengers unprecedented data from

454
00:17:26,949 --> 00:17:25,199
mercury is just beginning to be analyzed

455
00:17:29,830 --> 00:17:26,959
so we'll continue to undertake these

456
00:17:32,150 --> 00:17:29,840
world-class science missions to observe

457
00:17:34,230 --> 00:17:32,160
our planet to reach destinations

458
00:17:36,789 --> 00:17:34,240
throughout the solar system and peer

459
00:17:38,950 --> 00:17:36,799
even deeper into the universe

460
00:17:41,909 --> 00:17:38,960
through our technology programs hundreds

461
00:17:44,150 --> 00:17:41,919
of projects are being initiated

462
00:17:45,750 --> 00:17:44,160
and that space technology program serves

463
00:17:48,789 --> 00:17:45,760

as the catalyst for innovation

464
00:17:51,190 --> 00:17:48,799
throughout american aerospace industries

465
00:17:52,870 --> 00:17:51,200
and creating again those new high

466
00:17:55,430 --> 00:17:52,880
technology jobs

467
00:17:57,750 --> 00:17:55,440
innovations and fields such as materials

468
00:17:59,750 --> 00:17:57,760
research manufacturing and propulsion

469
00:18:01,830 --> 00:17:59,760
that will generate

470
00:18:04,230 --> 00:18:01,840
american leadership and guarantee that

471
00:18:07,029 --> 00:18:04,240
later that leadership continues in the

472
00:18:08,789 --> 00:18:07,039
new technology and economy

473
00:18:10,950 --> 00:18:08,799
we'll also continue to advance

474
00:18:14,470 --> 00:18:10,960
aeronautics research in partnership with

475
00:18:16,789 --> 00:18:14,480
other agencies to create that safe more

476
00:18:18,950 --> 00:18:16,799
environmentally friendly and efficient

477
00:18:21,270 --> 00:18:18,960
travel network for the next generation

478
00:18:23,430 --> 00:18:21,280
air transportation system

479
00:18:24,870 --> 00:18:23,440
so these efforts provide new knowledge

480
00:18:27,190 --> 00:18:24,880
that's what we're there for at nasa

481
00:18:28,390 --> 00:18:27,200
remember new challenges and increased

482
00:18:32,150 --> 00:18:28,400
inspiration

483
00:18:34,630 --> 00:18:32,160
to that next generation of leaders

484
00:18:36,950 --> 00:18:34,640
finally we're very very committed to

485
00:18:38,390 --> 00:18:36,960
having american companies in partnership

486
00:18:41,110 --> 00:18:38,400
with nasa

487
00:18:42,870 --> 00:18:41,120
send our cargo and precious astronauts

488
00:18:45,270 --> 00:18:42,880

to and from the international space

489
00:18:47,350 --> 00:18:45,280
station rather than continuing to

490
00:18:49,029 --> 00:18:47,360
outsource this work to foreign

491
00:18:50,710 --> 00:18:49,039
governments

492
00:18:52,789 --> 00:18:50,720
in order to make good on the whole plan

493
00:18:55,590 --> 00:18:52,799
we need this part of the plan to work

494
00:18:57,510 --> 00:18:55,600
this is critical and it is only through

495
00:18:59,669 --> 00:18:57,520
this investment and our technology

496
00:19:02,310 --> 00:18:59,679
investment that our missions and

497
00:19:05,270 --> 00:19:02,320
programs will be able to be conducted in

498
00:19:07,430 --> 00:19:05,280
a way that allows for the the valuable

499
00:19:11,669 --> 00:19:07,440
dollars that are uh invested by the

500
00:19:12,630 --> 00:19:11,679
public and nasa to return more science

501
00:19:18,870 --> 00:19:12,640
and

502
00:19:21,270 --> 00:19:18,880
so with growing launch costs we have

503
00:19:23,669 --> 00:19:21,280
been able to spend less and less on the

504
00:19:24,950 --> 00:19:23,679
science missions sending fewer and fewer

505
00:19:27,669 --> 00:19:24,960
people in space

506
00:19:30,150 --> 00:19:27,679
we need to change that paradigm lowering

507
00:19:32,710 --> 00:19:30,160
those launch costs so we can do more we

508
00:19:34,630 --> 00:19:32,720
can do the hard thing so let's be clear

509
00:19:36,710 --> 00:19:34,640
about our agenda

510
00:19:39,350 --> 00:19:36,720
it's probably pretty familiar to those

511
00:19:41,990 --> 00:19:39,360
of you here in seattle and elsewhere it

512
00:19:44,789 --> 00:19:42,000
has been used over and over that agenda

513
00:19:46,710 --> 00:19:44,799

is investing in the nations

514
00:19:49,110 --> 00:19:46,720
investing the nation's valuable tax

515
00:19:51,430 --> 00:19:49,120
dollars to assure a healthier more

516
00:19:53,430 --> 00:19:51,440
competitive industrial base that

517
00:19:55,669 --> 00:19:53,440
advances technology provides more

518
00:19:57,909 --> 00:19:55,679
scientific benefit and expands

519
00:20:00,710 --> 00:19:57,919
humanity's presence farther than ever

520
00:20:03,669 --> 00:20:00,720
before while creating new markets new

521
00:20:05,830 --> 00:20:03,679
industries and new jobs to advance our

522
00:20:07,110 --> 00:20:05,840
national security and our economic

523
00:20:09,669 --> 00:20:07,120
future

524
00:20:11,590 --> 00:20:09,679
this is our agenda we're committed to it

525
00:20:14,070 --> 00:20:11,600
we're proud of it and we're thrilled

526
00:20:16,549 --> 00:20:14,080
that so many of you are partners with us

527
00:20:18,630 --> 00:20:16,559
on it here in the united states alone

528
00:20:20,950 --> 00:20:18,640
according to a recent faa report

529
00:20:24,310 --> 00:20:20,960
commercial space transportation and

530
00:20:27,270 --> 00:20:24,320
enabled industries generated 208

531
00:20:30,230 --> 00:20:27,280
billion dollars in economic activity

532
00:20:32,870 --> 00:20:30,240
employed more than one million people

533
00:20:36,470 --> 00:20:32,880
that was in 2009 with earnings exceeding

534
00:20:39,029 --> 00:20:36,480
53 billion dollars that economic impact

535
00:20:40,149 --> 00:20:39,039
is only expected to grow and again that

536
00:20:41,830 --> 00:20:40,159
growth

537
00:20:43,270 --> 00:20:41,840
is our agenda

538
00:20:45,110 --> 00:20:43,280

you know the partnership between

539
00:20:48,390 --> 00:20:45,120
government government and industry that

540
00:20:52,950 --> 00:20:48,400
we're talking about in space is not new

541
00:20:55,270 --> 00:20:52,960
i recently read an article from 1961

542
00:20:57,590 --> 00:20:55,280
where the chairman of general electric

543
00:21:00,870 --> 00:20:57,600
company ralph cordner encouraged the

544
00:21:02,630 --> 00:21:00,880
shifting of space activities from

545
00:21:05,110 --> 00:21:02,640
exclusively government hands to

546
00:21:06,870 --> 00:21:05,120
partnership with a private sector hey

547
00:21:10,390 --> 00:21:06,880
nancy's been around for three years it's

548
00:21:13,270 --> 00:21:10,400
time to turn this over right 1961.

549
00:21:15,270 --> 00:21:13,280
in comparing the then soviet model to

550
00:21:17,110 --> 00:21:15,280
the united states he said

551
00:21:19,590 --> 00:21:17,120
the united states has its own more

552
00:21:21,510 --> 00:21:19,600
effective way of concentrating efficient

553
00:21:23,750 --> 00:21:21,520
effort on a technical project of

554
00:21:25,430 --> 00:21:23,760
importance to the national security and

555
00:21:28,630 --> 00:21:25,440
that is for the people through

556
00:21:30,870 --> 00:21:28,640
government to determine the objectives

557
00:21:32,630 --> 00:21:30,880
to be obtained that's our role and then

558
00:21:35,590 --> 00:21:32,640
turn over to the private firms that have

559
00:21:37,669 --> 00:21:35,600
the managerial and technical capability

560
00:21:41,430 --> 00:21:37,679
to get the work done

561
00:21:44,789 --> 00:21:41,440
using competition and profit or loss

562
00:21:47,350 --> 00:21:44,799
incentives to the maximum he added when

563
00:21:48,710 --> 00:21:47,360

the national need is clear

564
00:21:50,950 --> 00:21:48,720
the partnership of government and

565
00:21:54,149 --> 00:21:50,960
industry in the united states

566
00:21:55,270 --> 00:21:54,159
can work technical miracles we know

567
00:21:58,230 --> 00:21:55,280
that's what we've been doing in

568
00:22:00,630 --> 00:21:58,240
partnership in the past and we can work

569
00:22:02,310 --> 00:22:00,640
miracles together in the future

570
00:22:03,830 --> 00:22:02,320
he also warned

571
00:22:04,870 --> 00:22:03,840
of the dangers of too much government

572
00:22:07,190 --> 00:22:04,880
control

573
00:22:10,070 --> 00:22:07,200
he said that perhaps the government's

574
00:22:12,310 --> 00:22:10,080
portion should be around five percent

575
00:22:14,630 --> 00:22:12,320
of what we do of the technical work and

576
00:22:17,029 --> 00:22:14,640
space program that would best be done in

577
00:22:18,870 --> 00:22:17,039
government laboratories as we step up

578
00:22:21,590 --> 00:22:18,880
our activities he said on a space

579
00:22:23,510 --> 00:22:21,600
frontier many companies universities and

580
00:22:25,669 --> 00:22:23,520
individual citizens will become

581
00:22:26,950 --> 00:22:25,679
increasingly dependent on the political

582
00:22:28,950 --> 00:22:26,960
whims

583
00:22:30,710 --> 00:22:28,960
found familiar and necessities of the

584
00:22:33,110 --> 00:22:30,720
federal government but it's the

585
00:22:35,909 --> 00:22:33,120
competitive system with its profit and

586
00:22:39,430 --> 00:22:35,919
loss disciplines that puts men this was

587
00:22:41,669 --> 00:22:39,440
1961 and companies to the test as no

588
00:22:42,710 --> 00:22:41,679

other system does it rewards the

589
00:22:45,350 --> 00:22:42,720
creative

590
00:22:47,830 --> 00:22:45,360
and the efficient it provides a natural

591
00:22:50,710 --> 00:22:47,840
and effective system for elimination of

592
00:22:53,590 --> 00:22:50,720
failure complacency and delay

593
00:22:55,430 --> 00:22:53,600
at its best the competitive economy has

594
00:22:57,909 --> 00:22:55,440
a vigor diversity

595
00:23:00,549 --> 00:22:57,919
creativity and efficiency that no

596
00:23:02,630 --> 00:23:00,559
controlled economy can match

597
00:23:05,510 --> 00:23:02,640
government should do for the citizens at

598
00:23:07,830 --> 00:23:05,520
their expense those are the nasa dollars

599
00:23:10,470 --> 00:23:07,840
only those things that citizens cannot

600
00:23:12,310 --> 00:23:10,480
do for themselves through their private

601
00:23:14,149 --> 00:23:12,320
institutions

602
00:23:17,029 --> 00:23:14,159
1961.

603
00:23:19,750 --> 00:23:17,039
so nasa's not so new plan

604
00:23:21,590 --> 00:23:19,760
will allow each of us to do just that to

605
00:23:23,909 --> 00:23:21,600
perform our appropriate roles the

606
00:23:26,230 --> 00:23:23,919
commercial sector to play a larger role

607
00:23:28,470 --> 00:23:26,240
in earth orbit logistics and operations

608
00:23:30,549 --> 00:23:28,480
so that government can continue

609
00:23:33,669 --> 00:23:30,559
and concentrate on researching and

610
00:23:35,590 --> 00:23:33,679
developing deep space capabilities

611
00:23:38,070 --> 00:23:35,600
necessary to take humans beyond low

612
00:23:39,909 --> 00:23:38,080
earth orbit to places we've never been

613
00:23:41,830 --> 00:23:39,919

before

614
00:23:44,710 --> 00:23:41,840
the international space station is well

615
00:23:47,909 --> 00:23:44,720
positioned to help promote this growth

616
00:23:50,710 --> 00:23:47,919
of the low earth orbit space economy by

617
00:23:53,350 --> 00:23:50,720
operating as a customer and a first

618
00:23:55,110 --> 00:23:53,360
destination for our u.s companies

619
00:23:56,230 --> 00:23:55,120
capable of transporting crew and cargo

620
00:23:58,230 --> 00:23:56,240
in orbit

621
00:24:00,630 --> 00:23:58,240
while many of us maybe are a little

622
00:24:03,029 --> 00:24:00,640
frustrated that we haven't been able to

623
00:24:05,990 --> 00:24:03,039
advance this agenda faster i really want

624
00:24:08,390 --> 00:24:06,000
to emphasize the strides that we have in

625
00:24:11,830 --> 00:24:08,400
fact made together strides that would

626
00:24:13,669 --> 00:24:11,840
not be possible without all of you and

627
00:24:15,990 --> 00:24:13,679
many of you who will be speaking later

628
00:24:19,590 --> 00:24:16,000
today you know that we have implemented

629
00:24:21,430 --> 00:24:19,600
the two-phased approach for cargo to the

630
00:24:23,750 --> 00:24:21,440
international space station first with

631
00:24:26,230 --> 00:24:23,760
cots to develop and demonstrate

632
00:24:28,470 --> 00:24:26,240
commercial cargo transportation systems

633
00:24:31,350 --> 00:24:28,480
and then commercial resupply services

634
00:24:33,669 --> 00:24:31,360
following up crs to procure those cargo

635
00:24:35,990 --> 00:24:33,679
resupply services

636
00:24:38,070 --> 00:24:36,000
our partners and cots spacex and orbital

637
00:24:39,669 --> 00:24:38,080
sciences are making significant progress

638
00:24:41,029 --> 00:24:39,679

in developing and demonstrating their

639
00:24:43,990 --> 00:24:41,039
systems

640
00:24:46,630 --> 00:24:44,000
nasa has invested significant

641
00:24:49,750 --> 00:24:46,640
money 800 million dollars about in these

642
00:24:51,750 --> 00:24:49,760
efforts so we are very very pleased to

643
00:24:53,909 --> 00:24:51,760
announce just today that nasa is

644
00:24:56,149 --> 00:24:53,919
announcing that they we have set the

645
00:24:59,430 --> 00:24:56,159
target date to continue to make our

646
00:25:02,230 --> 00:24:59,440
progress uh our target date for

647
00:25:05,029 --> 00:25:02,240
launch on february 7th next year for

648
00:25:07,830 --> 00:25:05,039
spacex's second commercial orbital

649
00:25:09,830 --> 00:25:07,840
transportation services demonstration so

650
00:25:12,310 --> 00:25:09,840
pending all the final safety reviews and

651
00:25:13,909 --> 00:25:12,320
testing spacex will send its dragon

652
00:25:16,549 --> 00:25:13,919
spacecraft rendezvous with the

653
00:25:18,710 --> 00:25:16,559
international space station

654
00:25:20,870 --> 00:25:18,720
in less than two months so it is the

655
00:25:24,230 --> 00:25:20,880
opening of that new commercial

656
00:25:27,510 --> 00:25:24,240
cargo delivery era for iss

657
00:25:28,789 --> 00:25:27,520
and it's great news for nasa and spacex

658
00:25:30,070 --> 00:25:28,799
together

659
00:25:31,269 --> 00:25:30,080
and

660
00:25:33,110 --> 00:25:31,279
we have our

661
00:25:34,630 --> 00:25:33,120
gwen shot while speaking later can talk

662
00:25:37,430 --> 00:25:34,640
in more detail

663
00:25:39,430 --> 00:25:37,440

about this announcement today so we're

664
00:25:41,269 --> 00:25:39,440
also providing commercial resupply

665
00:25:44,470 --> 00:25:41,279
services

666
00:25:46,310 --> 00:25:44,480
after these milestones are met and we

667
00:25:49,750 --> 00:25:46,320
have committed three and a half billion

668
00:25:51,669 --> 00:25:49,760
dollars about for these efforts uh again

669
00:25:54,470 --> 00:25:51,679
if they are successful so

670
00:25:57,029 --> 00:25:54,480
in the area of crew transportation we

671
00:25:59,990 --> 00:25:57,039
have the cc dev program which you'll

672
00:26:01,350 --> 00:26:00,000
also be hearing more about uh next from

673
00:26:03,190 --> 00:26:01,360
our uh

674
00:26:05,669 --> 00:26:03,200
leader of our commercial crew programs

675
00:26:08,149 --> 00:26:05,679
phil mcallister nasa has conducted two

676
00:26:11,029 --> 00:26:08,159
rounds of competition so far and we are

677
00:26:14,310 --> 00:26:11,039
soliciting proposals from u.s industry

678
00:26:16,390 --> 00:26:14,320
participation for those next phases of

679
00:26:19,830 --> 00:26:16,400
this program the first round of spacex

680
00:26:22,070 --> 00:26:19,840
agreements went to blue origin boeing

681
00:26:25,110 --> 00:26:22,080
paragon space development corp sierra

682
00:26:27,909 --> 00:26:25,120
nevada and united launch alliance and

683
00:26:30,390 --> 00:26:27,919
our second round of competition

684
00:26:33,590 --> 00:26:30,400
winners were blue origin boeing sierra

685
00:26:37,669 --> 00:26:33,600
nevada and spacex that second round nasa

686
00:26:40,310 --> 00:26:37,679
has invested around 338 million dollars

687
00:26:43,510 --> 00:26:40,320
for our 2012 budget for this program

688
00:26:45,990 --> 00:26:43,520

while we have uh just received our

689
00:26:48,470 --> 00:26:46,000
appropriation from congress for

690
00:26:50,230 --> 00:26:48,480
uh 406 million dollars and that is

691
00:26:53,269 --> 00:26:50,240
significantly less than our requested

692
00:26:56,630 --> 00:26:53,279
850 million dollars it is nevertheless a

693
00:26:59,590 --> 00:26:56,640
significant step and we are looking now

694
00:27:02,310 --> 00:26:59,600
at uh an evaluation of how we move

695
00:27:04,630 --> 00:27:02,320
forward most effectively to advance the

696
00:27:07,669 --> 00:27:04,640
time when we will be able to count on

697
00:27:10,310 --> 00:27:07,679
u.s companies to deliver our precious

698
00:27:14,070 --> 00:27:10,320
astronauts to and from the space station

699
00:27:15,909 --> 00:27:14,080
so we do anticipate that one or more

700
00:27:17,590 --> 00:27:15,919
commercial crew systems will be

701
00:27:20,070 --> 00:27:17,600
available for the transportation of

702
00:27:22,549 --> 00:27:20,080
astronauts to the space station as well

703
00:27:24,710 --> 00:27:22,559
as the provision of rescue services by

704
00:27:26,070 --> 00:27:24,720
the middle of this decade and success of

705
00:27:28,470 --> 00:27:26,080
this program

706
00:27:31,110 --> 00:27:28,480
will of course and the outsourcing of

707
00:27:33,430 --> 00:27:31,120
this service to foreign providers

708
00:27:35,830 --> 00:27:33,440
so while it's not a new idea

709
00:27:38,389 --> 00:27:35,840
it should not be surprising that this

710
00:27:40,710 --> 00:27:38,399
increased emphasis and really for the

711
00:27:43,110 --> 00:27:40,720
first time significant investment on

712
00:27:43,909 --> 00:27:43,120
behalf of nasa has reached the stage

713
00:27:47,350 --> 00:27:43,919

where

714
00:27:49,430 --> 00:27:47,360
a real threat exists to the status quo

715
00:27:51,590 --> 00:27:49,440
so it is natural that that success

716
00:27:53,990 --> 00:27:51,600
inspires sometimes a negative reaction

717
00:27:57,029 --> 00:27:54,000
by vested interests and of course

718
00:27:59,350 --> 00:27:57,039
history is rich with examples of

719
00:28:01,830 --> 00:27:59,360
industries and entities in transition

720
00:28:04,789 --> 00:28:01,840
where those whose livelihoods and in

721
00:28:06,789 --> 00:28:04,799
some cases very lives were threatened by

722
00:28:09,430 --> 00:28:06,799
a new paradigm

723
00:28:12,950 --> 00:28:09,440
and they often choose sometimes to fight

724
00:28:16,230 --> 00:28:12,960
instead of to adapt and history proves

725
00:28:18,789 --> 00:28:16,240
that adaptation is critical to success

726
00:28:20,950 --> 00:28:18,799
and in some cases survival think of the

727
00:28:22,870 --> 00:28:20,960
dinosaurs and what happened to them they

728
00:28:25,430 --> 00:28:22,880
were not able to adapt

729
00:28:27,750 --> 00:28:25,440
but a local more recent example is

730
00:28:29,830 --> 00:28:27,760
obviously the personal computer industry

731
00:28:32,950 --> 00:28:29,840
while bill gates and the recently late

732
00:28:35,590 --> 00:28:32,960
steve jobs are revered today by nearly

733
00:28:37,909 --> 00:28:35,600
all it wasn't very long ago that the

734
00:28:40,470 --> 00:28:37,919
established computer companies fought

735
00:28:41,990 --> 00:28:40,480
these individuals and their inevitable

736
00:28:45,269 --> 00:28:42,000
advances

737
00:28:47,909 --> 00:28:45,279
ibm and others are even more successful

738
00:28:49,830 --> 00:28:47,919

and healthy today than they were before

739
00:28:51,350 --> 00:28:49,840
these new companies

740
00:28:53,909 --> 00:28:51,360
existed

741
00:28:55,830 --> 00:28:53,919
why because they were able to adapt so

742
00:28:58,310 --> 00:28:55,840
this is the model that we hope for our

743
00:29:01,110 --> 00:28:58,320
established aerospace industry we want a

744
00:29:03,029 --> 00:29:01,120
healthy growing robust and

745
00:29:05,669 --> 00:29:03,039
internationally competitive aerospace

746
00:29:07,990 --> 00:29:05,679
industry and while we may be

747
00:29:10,310 --> 00:29:08,000
maybe in the 70s the disco area as a

748
00:29:12,950 --> 00:29:10,320
comparison to the computer industry

749
00:29:15,669 --> 00:29:12,960
we are so pleased to see so many early

750
00:29:19,110 --> 00:29:15,679
adapters and we welcome them

751
00:29:21,590 --> 00:29:19,120
a more current example of this scenario

752
00:29:24,950 --> 00:29:21,600
it's from the entertainment world if

753
00:29:26,549 --> 00:29:24,960
you've seen the recent movie moneyball

754
00:29:29,830 --> 00:29:26,559
in a conversation near the end of the

755
00:29:31,909 --> 00:29:29,840
movie with john henry who is the owner

756
00:29:34,549 --> 00:29:31,919
of the boston red sox and billy bean the

757
00:29:36,389 --> 00:29:34,559
general manager of the oakland a's in

758
00:29:38,070 --> 00:29:36,399
2002

759
00:29:40,630 --> 00:29:38,080
uh john henry

760
00:29:43,750 --> 00:29:40,640
talks to billy about why it should not

761
00:29:45,909 --> 00:29:43,760
be a surprise that he uh has not been

762
00:29:48,149 --> 00:29:45,919
very popular with his new ideas so billy

763
00:29:50,870 --> 00:29:48,159

had almost won the championship that

764
00:29:53,430 --> 00:29:50,880
year in 2002 with one of the lowest

765
00:29:56,389 --> 00:29:53,440
payrolls in baseball through a new

766
00:29:58,870 --> 00:29:56,399
statistical strategy that predicted and

767
00:30:01,430 --> 00:29:58,880
produced more victories

768
00:30:03,430 --> 00:30:01,440
with use of undervalued ballplayers who

769
00:30:05,430 --> 00:30:03,440
had a knack for getting on base than the

770
00:30:08,149 --> 00:30:05,440
existing expensive

771
00:30:09,830 --> 00:30:08,159
time-consuming and inefficient method of

772
00:30:12,310 --> 00:30:09,840
traditional scouting so it was a

773
00:30:13,830 --> 00:30:12,320
revolutionary way of putting together a

774
00:30:16,389 --> 00:30:13,840
winning baseball team called

775
00:30:18,950 --> 00:30:16,399
sabermetrics so as one might expect the

776
00:30:20,950 --> 00:30:18,960
approach was not so well received

777
00:30:23,350 --> 00:30:20,960
by baseball traditionalists scouts

778
00:30:25,110 --> 00:30:23,360
pundits players and journalists

779
00:30:28,149 --> 00:30:25,120
so it might sound familiar

780
00:30:30,149 --> 00:30:28,159
uh john henry who was an early adapter

781
00:30:32,950 --> 00:30:30,159
and had just gone to the the boston red

782
00:30:35,190 --> 00:30:32,960
sox saw what billy bean had done and was

783
00:30:37,590 --> 00:30:35,200
trying to woo him to bring that system

784
00:30:39,029 --> 00:30:37,600
to boston so during their meeting henry

785
00:30:41,590 --> 00:30:39,039
explains to bean that he should

786
00:30:43,590 --> 00:30:41,600
understand why baseball old-timers and

787
00:30:44,870 --> 00:30:43,600
standard bearers were fighting this new

788
00:30:47,669 --> 00:30:44,880

system

789
00:30:50,789 --> 00:30:47,679
he says to being that a trailblazer the

790
00:30:51,830 --> 00:30:50,799
first man through the gap always gets

791
00:30:54,549 --> 00:30:51,840
bloodied

792
00:30:56,870 --> 00:30:54,559
whether it's in business or politics he

793
00:30:58,870 --> 00:30:56,880
reminded bean that people who are used

794
00:31:01,110 --> 00:30:58,880
to doing things the old way will fight

795
00:31:03,029 --> 00:31:01,120
like hell to preserve their careers and

796
00:31:05,750 --> 00:31:03,039
the status quo

797
00:31:10,789 --> 00:31:05,760
in the movie he says billy people go

798
00:31:15,350 --> 00:31:12,950
that's what we're up against

799
00:31:17,430 --> 00:31:15,360
as we work to advance space development

800
00:31:20,710 --> 00:31:17,440
and change and we

801
00:31:24,789 --> 00:31:20,720
need to keep in mind

802
00:31:27,430 --> 00:31:24,799
where uh this story uh will go

803
00:31:30,470 --> 00:31:27,440
because dinosaurs don't roam the earth

804
00:31:32,549 --> 00:31:30,480
the computing power of a 1970s mainframe

805
00:31:34,549 --> 00:31:32,559
exists in your iphone

806
00:31:37,269 --> 00:31:34,559
and every single baseball team in

807
00:31:39,669 --> 00:31:37,279
america uses some form of saber metrics

808
00:31:41,909 --> 00:31:39,679
to recruit baseball players it should be

809
00:31:45,269 --> 00:31:41,919
noted that those who adopted this trend

810
00:31:47,669 --> 00:31:45,279
first all these trends first mammals uh

811
00:31:49,110 --> 00:31:47,679
on up gained the greatest competitive

812
00:31:51,830 --> 00:31:49,120
advantage

813
00:31:53,990 --> 00:31:51,840

so what we are trying to do is have our

814
00:31:55,909 --> 00:31:54,000
whole community gain that competitive

815
00:31:59,029 --> 00:31:55,919
advantage moving out

816
00:32:01,430 --> 00:31:59,039
faster on this ambitious new direction

817
00:32:03,990 --> 00:32:01,440
that our nation's leaders have given us

818
00:32:06,310 --> 00:32:04,000
developing new technologies developing

819
00:32:09,029 --> 00:32:06,320
partnerships providing opportunities for

820
00:32:12,070 --> 00:32:09,039
competition and innovation and looking

821
00:32:15,990 --> 00:32:12,080
for ways to get the most mileage out of

822
00:32:18,789 --> 00:32:16,000
all of the hard work over the decades

823
00:32:21,190 --> 00:32:18,799
that this community has invested in the

824
00:32:23,750 --> 00:32:21,200
fields of engineering science

825
00:32:26,149 --> 00:32:23,760
aeronautics and technology this is what

826
00:32:28,710 --> 00:32:26,159
will inspire the next generation this is

827
00:32:30,149 --> 00:32:28,720
what you can talk about in the museum of

828
00:32:32,070 --> 00:32:30,159
flight

829
00:32:33,430 --> 00:32:32,080
thank you for being part of it each and

830
00:32:35,269 --> 00:32:33,440
every one of you

831
00:32:37,509 --> 00:32:35,279
we look forward to strengthening our

832
00:32:40,310 --> 00:32:37,519
partnerships with all of you as we take

833
00:32:41,110 --> 00:32:40,320
the next big leap in space exploration

834
00:32:43,269 --> 00:32:41,120
so

835
00:32:45,350 --> 00:32:43,279
thank you very much i'll turn it back to

836
00:32:55,190 --> 00:32:45,360
david but i'll be happy to answer your

837
00:32:59,669 --> 00:32:57,269
uh thank you so much lori that was a

838
00:33:02,070 --> 00:32:59,679

great great discussion about the past

839
00:33:04,389 --> 00:33:02,080
present and future fitting to be taking

840
00:33:05,269 --> 00:33:04,399
place here at the museum of flight

841
00:33:07,110 --> 00:33:05,279
uh

842
00:33:08,710 --> 00:33:07,120
we now can take some questions from the

843
00:33:10,149 --> 00:33:08,720
audience if there are questions from

844
00:33:13,029 --> 00:33:10,159
folks here who would like to ask

845
00:33:14,870 --> 00:33:13,039
questions of the deputy administrator

846
00:33:17,509 --> 00:33:14,880
just a reminder that you can also follow

847
00:33:19,990 --> 00:33:17,519
today's conversation on twitter

848
00:33:21,590 --> 00:33:20,000
at pound nasa future

849
00:33:23,669 --> 00:33:21,600
we have microphones here in the back of

850
00:33:26,549 --> 00:33:23,679
the room if anyone would like to step up

851
00:33:29,269 --> 00:33:26,559
and ask the question of ms garver

852
00:33:30,789 --> 00:33:29,279
apologies to have to have folks take a a

853
00:33:33,190 --> 00:33:30,799
little bit of a hike we're going to move

854
00:33:34,710 --> 00:33:33,200
them on down also for anyone who's

855
00:33:36,470 --> 00:33:34,720
coming in late who would like to come up

856
00:33:46,310 --> 00:33:36,480
and take a seat please feel free to do

857
00:33:51,190 --> 00:33:47,590
good morning

858
00:33:56,549 --> 00:33:54,950
i understand uh your your point about

859
00:33:58,630 --> 00:33:56,559
uh switching to the private model

860
00:34:00,470 --> 00:33:58,640
especially in cargo services and i'm in

861
00:34:02,549 --> 00:34:00,480
full agreement and i wonder how do you

862
00:34:04,470 --> 00:34:02,559
look at balancing

863
00:34:06,710 --> 00:34:04,480

what some people might view as those

864
00:34:08,790 --> 00:34:06,720
short-term important steps

865
00:34:11,030 --> 00:34:08,800
with requirements for some of the

866
00:34:13,190 --> 00:34:11,040
longer-term fundamental technology

867
00:34:15,750 --> 00:34:13,200
investments that need to happen to

868
00:34:17,109 --> 00:34:15,760
ensure future developments in space

869
00:34:18,230 --> 00:34:17,119
development

870
00:34:19,109 --> 00:34:18,240
you know

871
00:34:21,909 --> 00:34:19,119
it is

872
00:34:23,990 --> 00:34:21,919
we hope a portfolio of investment on

873
00:34:26,149 --> 00:34:24,000
nasa we have to invest something in

874
00:34:27,750 --> 00:34:26,159
those longer term technologies that will

875
00:34:29,030 --> 00:34:27,760
benefit in

876
00:34:31,270 --> 00:34:29,040
the decades

877
00:34:33,669 --> 00:34:31,280
to come but we also need to help make

878
00:34:36,629 --> 00:34:33,679
that transition to the private sector so

879
00:34:38,710 --> 00:34:36,639
investing in things that uh

880
00:34:40,790 --> 00:34:38,720
there are future markets for that

881
00:34:43,030 --> 00:34:40,800
industry might actually have the ability

882
00:34:46,710 --> 00:34:43,040
to have the government not be its sole

883
00:34:49,109 --> 00:34:46,720
customer so we have been transferring

884
00:34:52,149 --> 00:34:49,119
cargo and crew to low earth orbit for 50

885
00:34:55,030 --> 00:34:52,159
years and we've been doing that with our

886
00:34:56,950 --> 00:34:55,040
industrial partnerships there are

887
00:34:59,190 --> 00:34:56,960
more things and more people who want to

888
00:35:02,870 --> 00:34:59,200

go to space than just on behalf of the

889
00:35:06,150 --> 00:35:02,880
government so we feel this is a very

890
00:35:07,990 --> 00:35:06,160
uh natural ripe area for that

891
00:35:09,589 --> 00:35:08,000
transitional time while we continue to

892
00:35:11,670 --> 00:35:09,599
invest in those technologies that we

893
00:35:13,349 --> 00:35:11,680
don't know which ones will develop into

894
00:35:15,589 --> 00:35:13,359
new markets that's how the government

895
00:35:16,550 --> 00:35:15,599
works nasa shouldn't be operating these

896
00:35:19,030 --> 00:35:16,560
systems

897
00:35:20,790 --> 00:35:19,040
we should be doing the research we

898
00:35:23,829 --> 00:35:20,800
should be making the new discoveries and

899
00:35:24,950 --> 00:35:23,839
if we can do that with our partners and

900
00:35:28,310 --> 00:35:24,960
they can

901
00:35:29,589 --> 00:35:28,320
help provide new markets and open

902
00:35:32,310 --> 00:35:29,599
these

903
00:35:34,950 --> 00:35:32,320
economic growth for

904
00:35:37,430 --> 00:35:34,960
those types of uh

905
00:35:38,950 --> 00:35:37,440
things that that are not just government

906
00:35:42,069 --> 00:35:38,960
that will benefit

907
00:35:44,870 --> 00:35:42,079
us all that is capitalism and uh we

908
00:35:47,750 --> 00:35:44,880
don't believe that the very best of us

909
00:35:50,390 --> 00:35:47,760
is just in government we believe that

910
00:35:53,109 --> 00:35:50,400
this whole system has a lot to offer

911
00:35:55,109 --> 00:35:53,119
space exploration as it has aeronautics

912
00:35:57,589 --> 00:35:55,119
earth sciences communications those many

913
00:36:00,550 --> 00:35:57,599

many things we have invested in at nasa

914
00:36:06,790 --> 00:36:00,560
that are providing benefit by our

915
00:36:10,870 --> 00:36:08,230
hi there

916
00:36:13,670 --> 00:36:10,880
um i have a question concerning the

917
00:36:16,310 --> 00:36:13,680
continued by through the obama

918
00:36:19,589 --> 00:36:16,320
administration through a continued

919
00:36:20,790 --> 00:36:19,599
systemic takedown of nasa

920
00:36:23,190 --> 00:36:20,800
um

921
00:36:25,190 --> 00:36:23,200
that you know put forward as a as a

922
00:36:27,030 --> 00:36:25,200
fraud that we would end the manned space

923
00:36:28,230 --> 00:36:27,040
program and then move towards the

924
00:36:31,910 --> 00:36:28,240
instrumental

925
00:36:32,790 --> 00:36:31,920
of nasa which of course has not happened

926
00:36:35,109 --> 00:36:32,800
we're

927
00:36:37,030 --> 00:36:35,119
gutting the instrumental side too uh so

928
00:36:41,190 --> 00:36:37,040
my question is this

929
00:36:43,990 --> 00:36:41,200
uh dimitri regrozan who is the nato of

930
00:36:46,230 --> 00:36:44,000
the russian envoy to nato

931
00:36:48,470 --> 00:36:46,240
proposed a strategic defense of the

932
00:36:51,430 --> 00:36:48,480
earth which is a revival of lyndon

933
00:36:52,950 --> 00:36:51,440
larouche's strategic defense initiative

934
00:36:55,349 --> 00:36:52,960
which would not only render nuclear

935
00:36:59,030 --> 00:36:55,359
warfare obsolete but deal with threats

936
00:37:00,710 --> 00:36:59,040
we face from space such as asteroids etc

937
00:37:03,030 --> 00:37:00,720
and they had put this forward after the

938
00:37:05,510 --> 00:37:03,040

obama administration refused to give the

939
00:37:07,190 --> 00:37:05,520
russians assurances that the missile

940
00:37:09,109 --> 00:37:07,200
defense systems in eastern europe were

941
00:37:12,550 --> 00:37:09,119
not aimed at russia

942
00:37:15,109 --> 00:37:12,560
they did so they proposed the sde as a

943
00:37:17,430 --> 00:37:15,119
war avoidance policy

944
00:37:20,230 --> 00:37:17,440
to avoid a thermonuclear showdown which

945
00:37:23,030 --> 00:37:20,240
is now shaping up so

946
00:37:25,990 --> 00:37:23,040
my question is this which is

947
00:37:28,870 --> 00:37:26,000
will there be a future for nasa and

948
00:37:30,310 --> 00:37:28,880
frankly for our country with obama in

949
00:37:32,550 --> 00:37:30,320
the presidency

950
00:37:34,550 --> 00:37:32,560
and as well would you support the

951
00:37:36,550 --> 00:37:34,560
strategic defense of the earth policy

952
00:37:38,870 --> 00:37:36,560
put forward by the russians

953
00:37:41,190 --> 00:37:38,880
i don't feel like can at nasa as a civil

954
00:37:43,510 --> 00:37:41,200
space agency address the missile defense

955
00:37:46,150 --> 00:37:43,520
issues but is not completely unrelated

956
00:37:48,470 --> 00:37:46,160
to my answer to the first which is the

957
00:37:50,390 --> 00:37:48,480
obama administration has done nothing

958
00:37:52,150 --> 00:37:50,400
other than advancing

959
00:37:54,630 --> 00:37:52,160
our human

960
00:37:57,670 --> 00:37:54,640
space program and advancing our

961
00:38:00,550 --> 00:37:57,680
investment in nasa we have asked for

962
00:38:03,270 --> 00:38:00,560
increased budgets each year it has

963
00:38:05,510 --> 00:38:03,280

actually been the congress who has has

964
00:38:06,829 --> 00:38:05,520
made our cuts most recently in 2012 we

965
00:38:09,589 --> 00:38:06,839
asked for

966
00:38:11,430 --> 00:38:09,599
18.7 billion dollars for nasa it was a

967
00:38:13,190 --> 00:38:11,440
congress who gave us about a billion

968
00:38:15,349 --> 00:38:13,200
dollars less than that the bush

969
00:38:17,349 --> 00:38:15,359
administration had actually determined

970
00:38:18,630 --> 00:38:17,359
and decided to end the space shuttle

971
00:38:20,790 --> 00:38:18,640
program more than

972
00:38:23,270 --> 00:38:20,800
six years ago the obama administration

973
00:38:24,950 --> 00:38:23,280
when we came in quickly added two more

974
00:38:26,390 --> 00:38:24,960
flights it was all the flights that

975
00:38:28,710 --> 00:38:26,400
could be added because that's the number

976
00:38:30,470 --> 00:38:28,720
of external tanks we had we wanted to

977
00:38:32,710 --> 00:38:30,480
fully utilize the international space

978
00:38:35,349 --> 00:38:32,720
station so we added the alpha magnetic

979
00:38:36,950 --> 00:38:35,359
spectrometer a wonderful science

980
00:38:39,430 --> 00:38:36,960
experiment for space station which had

981
00:38:41,829 --> 00:38:39,440
been canceled by the bush administration

982
00:38:45,030 --> 00:38:41,839
and we added that very last flight of

983
00:38:46,950 --> 00:38:45,040
discovery so that we could add

984
00:38:49,270 --> 00:38:46,960
all of the capability to space station

985
00:38:51,430 --> 00:38:49,280
that it would take to be able to have

986
00:38:54,550 --> 00:38:51,440
this permanent presence until we can get

987
00:38:57,109 --> 00:38:54,560
there again from u.s soil so we not only

988
00:38:59,510 --> 00:38:57,119

extended the shuttle program but

989
00:39:02,790 --> 00:38:59,520
accelerated the program to get

990
00:39:06,069 --> 00:39:02,800
astronauts to and from space from here

991
00:39:07,990 --> 00:39:06,079
in u.s soil we adopted a program that

992
00:39:10,390 --> 00:39:08,000
was headed off of a cliff for human

993
00:39:12,550 --> 00:39:10,400
space flight and have saved this program

994
00:39:16,630 --> 00:39:12,560
we could not be prouder of it the

995
00:39:19,190 --> 00:39:16,640
message is very clear that we care about

996
00:39:20,950 --> 00:39:19,200
human space flight we will not only

997
00:39:23,670 --> 00:39:20,960
reduce the time when we won't be able to

998
00:39:25,910 --> 00:39:23,680
launch people to and from space from the

999
00:39:28,150 --> 00:39:25,920
united states but we will accelerate the

1000
00:39:29,750 --> 00:39:28,160
time when we are again exploring beyond

1001
00:39:32,150 --> 00:39:29,760
low earth orbit going to new

1002
00:39:34,390 --> 00:39:32,160
destinations and

1003
00:39:36,470 --> 00:39:34,400
rewriting those textbooks revealing the

1004
00:39:46,230 --> 00:39:36,480
unknown and reaching new heights so

1005
00:39:50,950 --> 00:39:49,030
good morning lori david anderson retired

1006
00:39:52,470 --> 00:39:50,960
boeing product development

1007
00:39:54,950 --> 00:39:52,480
can you tell us a little bit about the

1008
00:39:56,470 --> 00:39:54,960
competition and collaboration

1009
00:39:58,710 --> 00:39:56,480
with other agencies

1010
00:40:02,710 --> 00:39:58,720
such as the european space agency or

1011
00:40:08,950 --> 00:40:05,670
nearly half of nasa's programs are done

1012
00:40:12,150 --> 00:40:08,960
in cooperation with uh our international

1013
00:40:14,710 --> 00:40:12,160

partners the space station is the

1014
00:40:15,990 --> 00:40:14,720
largest and most obvious example with 14

1015
00:40:17,829 --> 00:40:16,000
nations

1016
00:40:19,910 --> 00:40:17,839
working together collaboratively for

1017
00:40:22,470 --> 00:40:19,920
these last 20 years but our science

1018
00:40:25,750 --> 00:40:22,480
programs are also almost never done

1019
00:40:28,470 --> 00:40:25,760
alone even in aeronautics and certainly

1020
00:40:30,390 --> 00:40:28,480
in earth sciences where we share 100

1021
00:40:31,750 --> 00:40:30,400
of our data with the entire world

1022
00:40:34,069 --> 00:40:31,760
helping them

1023
00:40:36,230 --> 00:40:34,079
manage their own resources in their

1024
00:40:39,750 --> 00:40:36,240
countries helping them predict their

1025
00:40:43,030 --> 00:40:39,760
weather understand the changing planet

1026
00:40:45,430 --> 00:40:43,040
this is a global endeavor nasa i know we

1027
00:40:47,349 --> 00:40:45,440
really believe that we can

1028
00:40:49,510 --> 00:40:47,359
add to economic growth in this country

1029
00:40:51,190 --> 00:40:49,520
by being more competitive but

1030
00:40:53,910 --> 00:40:51,200
where is a leader if there are no

1031
00:40:55,030 --> 00:40:53,920
followers so we as a leader believe in

1032
00:40:58,230 --> 00:40:55,040
partnering

1033
00:41:01,910 --> 00:40:58,240
with uh the rest of the world and it is

1034
00:41:04,710 --> 00:41:01,920
a very very gratifying thing to be at

1035
00:41:06,390 --> 00:41:04,720
nasa at a time when while we symbolized

1036
00:41:08,550 --> 00:41:06,400
the very cold war

1037
00:41:11,109 --> 00:41:08,560
in 1960s

1038
00:41:12,710 --> 00:41:11,119

we are a product of the space race post

1039
00:41:14,309 --> 00:41:12,720
sputnik right that's that's why we're

1040
00:41:17,510 --> 00:41:14,319
here

1041
00:41:19,589 --> 00:41:17,520
we are now working peacefully with

1042
00:41:20,390 --> 00:41:19,599
russia the former soviet union in order

1043
00:41:22,710 --> 00:41:20,400
to

1044
00:41:25,030 --> 00:41:22,720
expand human presence outward

1045
00:41:29,109 --> 00:41:25,040
and that i don't think you can put a

1046
00:41:31,270 --> 00:41:29,119
price tag on the value of offering that

1047
00:41:34,630 --> 00:41:31,280
to the world and we hope to be able to

1048
00:41:35,990 --> 00:41:34,640
continue to expand those partnerships

1049
00:41:38,230 --> 00:41:36,000
to provide

1050
00:41:39,910 --> 00:41:38,240
leadership but also partnership

1051
00:41:42,150 --> 00:41:39,920
throughout

1052
00:41:44,150 --> 00:41:42,160
our future we when we went to the moon

1053
00:41:46,790 --> 00:41:44,160
turned around looked back and saw this

1054
00:41:49,510 --> 00:41:46,800
one fragile planet it is not

1055
00:41:52,230 --> 00:41:49,520
a coincidence that earth day started in

1056
00:41:53,990 --> 00:41:52,240
1970 just one year after we landed on

1057
00:41:56,150 --> 00:41:54,000
the moon we went out

1058
00:41:59,270 --> 00:41:56,160
looked back and it gave us a new

1059
00:42:01,670 --> 00:41:59,280
perspective and a new appreciation for

1060
00:42:03,270 --> 00:42:01,680
the planet that we reside on together

1061
00:42:05,829 --> 00:42:03,280
and i haven't talked to a single

1062
00:42:07,910 --> 00:42:05,839
astronaut who hasn't come back changed

1063
00:42:10,950 --> 00:42:07,920

recognizing that we are all here

1064
00:42:12,550 --> 00:42:10,960
together and more we can learn about not

1065
00:42:15,430 --> 00:42:12,560
only how to help

1066
00:42:18,230 --> 00:42:15,440
live together peacefully how to uh

1067
00:42:20,230 --> 00:42:18,240
protect our planet i think that is one

1068
00:42:22,550 --> 00:42:20,240
of the very very best

1069
00:42:25,270 --> 00:42:22,560
investments that this nation can make

1070
00:42:27,829 --> 00:42:25,280
thank you thanks

1071
00:42:29,349 --> 00:42:27,839
um hi i was wondering how nasa is

1072
00:42:32,630 --> 00:42:29,359
planning on inspiring the next

1073
00:42:35,349 --> 00:42:32,640
generation of students and

1074
00:42:37,190 --> 00:42:35,359
what inspires you

1075
00:42:39,910 --> 00:42:37,200
i really like the

1076
00:42:42,790 --> 00:42:39,920
the possibility of life on mars and life

1077
00:42:46,470 --> 00:42:42,800
on other planets and okay so what is

1078
00:42:48,870 --> 00:42:46,480
nasa doing about that we have as i said

1079
00:42:51,109 --> 00:42:48,880
the mars science laboratory on its way

1080
00:42:52,950 --> 00:42:51,119
to mars we just announced through the

1081
00:42:56,710 --> 00:42:52,960
opportunity rover which has spent the

1082
00:43:01,510 --> 00:42:56,720
last three years roving mars again

1083
00:43:03,829 --> 00:43:01,520
gypsum in a a river valley that

1084
00:43:06,230 --> 00:43:03,839
is a very strong indicator of not just

1085
00:43:09,349 --> 00:43:06,240
water on mars but flowing water on mars

1086
00:43:11,750 --> 00:43:09,359
so what might that mean maybe we'll need

1087
00:43:14,630 --> 00:43:11,760
bill nye to tell us

1088
00:43:17,589 --> 00:43:14,640

where you find water you find life this

1089
00:43:20,550 --> 00:43:17,599
is an extremely exciting thing and we

1090
00:43:22,870 --> 00:43:20,560
are exploring as we should first with

1091
00:43:24,950 --> 00:43:22,880
our robots and ultimately with humans

1092
00:43:27,510 --> 00:43:24,960
your generation i believe will have the

1093
00:43:28,950 --> 00:43:27,520
opportunity to go to space to go back to

1094
00:43:30,630 --> 00:43:28,960
the moon i always thought i would get to

1095
00:43:33,589 --> 00:43:30,640
go to the moon i was eight years old

1096
00:43:34,950 --> 00:43:33,599
when we first walked on it and to go

1097
00:43:37,910 --> 00:43:34,960
find out

1098
00:43:39,990 --> 00:43:37,920
what happened or where life on mars is

1099
00:43:43,030 --> 00:43:40,000
today we are also through things like

1100
00:43:44,230 --> 00:43:43,040
our discovery uh just a couple weeks ago

1101
00:43:47,910 --> 00:43:44,240
although we've been working on it for a

1102
00:43:49,990 --> 00:43:47,920
couple years from uh kepler

1103
00:43:52,790 --> 00:43:50,000
a distant planet revolving around

1104
00:43:54,710 --> 00:43:52,800
another star in the habitable zone what

1105
00:43:56,230 --> 00:43:54,720
will that mean and when we launch the

1106
00:43:58,710 --> 00:43:56,240
web telescope we will be able to

1107
00:44:00,710 --> 00:43:58,720
determine a surface and maybe find a

1108
00:44:02,710 --> 00:44:00,720
blue planet in the habitable zone well

1109
00:44:04,150 --> 00:44:02,720
what will that mean bill nye

1110
00:44:05,750 --> 00:44:04,160
these are the kinds of things that

1111
00:44:07,109 --> 00:44:05,760
hopefully will inspire your generation

1112
00:44:10,069 --> 00:44:07,119
but people are inspired by a lot of

1113
00:44:12,950 --> 00:44:10,079

things i was inspired early on of course

1114
00:44:16,950 --> 00:44:12,960
by nasa and our our lunar explorations

1115
00:44:19,430 --> 00:44:16,960
but there are new things to learn and uh

1116
00:44:21,510 --> 00:44:19,440
that that i'm glad is something that you

1117
00:44:22,550 --> 00:44:21,520
look for us to do because again that's a

1118
00:44:25,190 --> 00:44:22,560
unique

1119
00:44:27,910 --> 00:44:25,200
role of nasa we feel

1120
00:44:30,309 --> 00:44:27,920
we're the best in the world at it we are

1121
00:44:31,990 --> 00:44:30,319
pretty focused on it and

1122
00:44:34,790 --> 00:44:32,000
we believe it returns real benefit

1123
00:44:37,510 --> 00:44:34,800
because you then will hopefully

1124
00:44:40,069 --> 00:44:37,520
study how to make those next discoveries

1125
00:44:43,670 --> 00:44:40,079
you'll go into fields that will help us

1126
00:44:45,750 --> 00:44:43,680
make those next innovations and continue

1127
00:44:47,750 --> 00:44:45,760
to explore and expand while returning

1128
00:44:48,790 --> 00:44:47,760
real benefit to us here on earth so

1129
00:44:51,190 --> 00:44:48,800
please do

1130
00:44:52,230 --> 00:44:51,200
thank you yes over here

1131
00:44:55,349 --> 00:44:52,240
hi

1132
00:45:00,150 --> 00:44:55,359
i'm jim tillman a research professor

1133
00:45:06,390 --> 00:45:03,589
many years ago my staff and i

1134
00:45:08,950 --> 00:45:06,400
operated viking lander one on mars did

1135
00:45:10,950 --> 00:45:08,960
all of the spacecraft processing we had

1136
00:45:13,829 --> 00:45:10,960
some really good people

1137
00:45:17,349 --> 00:45:13,839
there to do that and i want to ask you

1138
00:45:21,910 --> 00:45:19,349

i'm a finnish delegate to the

1139
00:45:23,030 --> 00:45:21,920
international mars exploration working

1140
00:45:25,109 --> 00:45:23,040
group

1141
00:45:27,670 --> 00:45:25,119
i understand nasa did not like the

1142
00:45:31,270 --> 00:45:27,680
concept of a u.s citizen being a finnish

1143
00:45:33,349 --> 00:45:31,280
delegate but that's the way it is

1144
00:45:35,109 --> 00:45:33,359
and

1145
00:45:38,150 --> 00:45:35,119
we have a mission

1146
00:45:39,430 --> 00:45:38,160
with finland and russia with small

1147
00:45:42,870 --> 00:45:39,440
landers

1148
00:45:44,069 --> 00:45:42,880
called met.net meteorology network

1149
00:45:45,430 --> 00:45:44,079
and

1150
00:45:48,630 --> 00:45:45,440
i

1151
00:45:50,069 --> 00:45:48,640
encourage

1152
00:45:52,550 --> 00:45:50,079
nasa to

1153
00:45:55,910 --> 00:45:52,560
continue that kind of

1154
00:45:57,349 --> 00:45:55,920
collaboration they're small landers

1155
00:45:58,150 --> 00:45:57,359
and uh

1156
00:46:00,870 --> 00:45:58,160
but

1157
00:46:02,710 --> 00:46:00,880
meteorology and very good

1158
00:46:05,270 --> 00:46:02,720
do you have are you familiar with that

1159
00:46:07,349 --> 00:46:05,280
mission and do you have any comments i'm

1160
00:46:09,670 --> 00:46:07,359
not familiar with a particular mission

1161
00:46:11,430 --> 00:46:09,680
nasa is very interested first of all it

1162
00:46:14,550 --> 00:46:11,440
sounds to me like u.s leadership to have

1163
00:46:17,990 --> 00:46:14,560

a u.s finnish representative for for

1164
00:46:20,150 --> 00:46:18,000
mars exploration we have the uh

1165
00:46:22,230 --> 00:46:20,160
experience at mars of large and small

1166
00:46:25,510 --> 00:46:22,240
landers from viking thank you for your

1167
00:46:27,829 --> 00:46:25,520
service and contributions uh to the

1168
00:46:30,069 --> 00:46:27,839
spirit and opportunity to pathfinder

1169
00:46:32,630 --> 00:46:30,079
smaller rovers which we are able to do

1170
00:46:34,230 --> 00:46:32,640
more quickly and and for less money as i

1171
00:46:35,829 --> 00:46:34,240
mentioned the portfolio approach to

1172
00:46:37,750 --> 00:46:35,839
technology i think it's the same to

1173
00:46:39,030 --> 00:46:37,760
exploration we know there are certain

1174
00:46:41,349 --> 00:46:39,040
things that have to be done through

1175
00:46:43,190 --> 00:46:41,359
flagship missions and larger missions

1176
00:46:45,430 --> 00:46:43,200
but we also know that we can be more

1177
00:46:48,069 --> 00:46:45,440
nimble learning from

1178
00:46:51,829 --> 00:46:48,079
uh our our knowledge that is gained in

1179
00:46:53,750 --> 00:46:51,839
existing missions and create ways to go

1180
00:46:55,190 --> 00:46:53,760
to distant places with smaller missions

1181
00:46:57,990 --> 00:46:55,200
cheaper especially while it costs so

1182
00:46:59,670 --> 00:46:58,000
much to launch things right we know that

1183
00:47:02,069 --> 00:46:59,680
we can put those missions together more

1184
00:47:03,510 --> 00:47:02,079
quickly and i think as technology

1185
00:47:04,390 --> 00:47:03,520
advances one of the things we're looking

1186
00:47:05,750 --> 00:47:04,400
to do

1187
00:47:08,150 --> 00:47:05,760
is

1188
00:47:10,550 --> 00:47:08,160

have smaller instruments put those

1189
00:47:12,790 --> 00:47:10,560
things together where we can do even

1190
00:47:15,190 --> 00:47:12,800
more in form of exploration so so thank

1191
00:47:16,950 --> 00:47:15,200
you i mean from viking uh to now has

1192
00:47:19,750 --> 00:47:16,960
been an incredible

1193
00:47:22,549 --> 00:47:19,760
successful armada of spacecraft going to

1194
00:47:25,270 --> 00:47:22,559
mars and uh we stand on your shoulders

1195
00:47:27,589 --> 00:47:25,280
so thank you the matinet

1196
00:47:30,710 --> 00:47:27,599
i wrote a paragraph that's in the book

1197
00:47:33,670 --> 00:47:30,720
towards mars saying we need this kind of

1198
00:47:34,549 --> 00:47:33,680
a small mission cheap mission

1199
00:47:35,829 --> 00:47:34,559
uh

1200
00:47:38,470 --> 00:47:35,839
within

1201
00:47:41,190 --> 00:47:38,480
three years russia had designed the

1202
00:47:43,109 --> 00:47:41,200
breadboard and i showed it here at come

1203
00:47:45,430 --> 00:47:43,119
together washington our two billion

1204
00:47:47,510 --> 00:47:45,440
dollar fundraiser

1205
00:47:51,030 --> 00:47:47,520
it's inexpensive

1206
00:47:52,950 --> 00:47:51,040
and our plans are to have 16 of them

1207
00:47:54,390 --> 00:47:52,960
on the surface of mars in the near

1208
00:47:56,470 --> 00:47:54,400
future

1209
00:47:58,390 --> 00:47:56,480
thank you very much thank you very

1210
00:48:01,109 --> 00:47:58,400
interesting maybe just one more david or

1211
00:48:03,030 --> 00:48:01,119
you want me okay

1212
00:48:05,349 --> 00:48:03,040
greg good morning lori greg maranac st

1213
00:48:06,549 --> 00:48:05,359

louis science center speaking of small

1214
00:48:08,950 --> 00:48:06,559
and nimble

1215
00:48:11,349 --> 00:48:08,960
how is nasa working with these new small

1216
00:48:13,109 --> 00:48:11,359
nimble suborbital space

1217
00:48:14,549 --> 00:48:13,119
companies in the united states to

1218
00:48:17,190 --> 00:48:14,559
advance

1219
00:48:19,430 --> 00:48:17,200
both human and and

1220
00:48:21,030 --> 00:48:19,440
scientific ventures well that's a great

1221
00:48:22,710 --> 00:48:21,040
question so i did not mention our

1222
00:48:25,109 --> 00:48:22,720
suborbital program we have a program

1223
00:48:27,750 --> 00:48:25,119
called cruiser and we are looking again

1224
00:48:29,750 --> 00:48:27,760
since nasa has provided suborbital uh

1225
00:48:32,309 --> 00:48:29,760
transportation as has the private sector

1226
00:48:34,630 --> 00:48:32,319
for a while for science to having them

1227
00:48:37,270 --> 00:48:34,640
be able to not only do more science

1228
00:48:39,190 --> 00:48:37,280
cheaply but take that next payload what

1229
00:48:41,750 --> 00:48:39,200
what might that next payload be there's

1230
00:48:44,069 --> 00:48:41,760
a lot of us around who would love to

1231
00:48:45,589 --> 00:48:44,079
do an allen shepherd do a suborbital

1232
00:48:48,069 --> 00:48:45,599
space flight and so there are a couple

1233
00:48:50,470 --> 00:48:48,079
of companies now looking at that

1234
00:48:52,150 --> 00:48:50,480
possibility working toward

1235
00:48:55,030 --> 00:48:52,160
opening that market and again what would

1236
00:48:56,870 --> 00:48:55,040
nasa do we would buy research time on

1237
00:48:58,470 --> 00:48:56,880
this orbital sub-orbital market why

1238
00:48:59,430 --> 00:48:58,480

would we launch our own suborbital

1239
00:49:02,710 --> 00:48:59,440
rocket

1240
00:49:05,430 --> 00:49:02,720
if somebody's going uh with people on

1241
00:49:07,109 --> 00:49:05,440
board but we want to not only maybe send

1242
00:49:09,750 --> 00:49:07,119
a researcher but also

1243
00:49:12,630 --> 00:49:09,760
do the research that we're already doing

1244
00:49:15,430 --> 00:49:12,640
in that arena so it is a very natural

1245
00:49:17,990 --> 00:49:15,440
progression from suborbital to orbital

1246
00:49:20,150 --> 00:49:18,000
and a number of companies are working uh

1247
00:49:21,750 --> 00:49:20,160
toward achieving that market our role

1248
00:49:23,829 --> 00:49:21,760
isn't to compete with them

1249
00:49:25,430 --> 00:49:23,839
it's to have them help us reduce the

1250
00:49:28,710 --> 00:49:25,440
cost of the research that we would do

1251
00:49:30,790 --> 00:49:28,720
anyway in that arena and maybe help

1252
00:49:32,630 --> 00:49:30,800
establish their market and be an anchor

1253
00:49:34,549 --> 00:49:32,640
tenant and buy down their risk

1254
00:49:36,309 --> 00:49:34,559
completely appropriate role for nasa and