
Mr. Leland Melvin
NASA Headquarters

1
00:00:30,150 --> 00:00:28,470
at nasa we want to make technology

2
00:00:32,229 --> 00:00:30,160
investments because we believe they're

3
00:00:34,470 --> 00:00:32,239
important to our future our future

4
00:00:37,030 --> 00:00:34,480
missions in aeronautics science and

5
00:00:38,790 --> 00:00:37,040
exploration what's cool

6
00:00:41,270 --> 00:00:38,800
is discovery

7
00:00:43,270 --> 00:00:41,280
learning new things

8
00:00:46,069 --> 00:00:43,280
having those aha moments where the

9
00:00:48,389 --> 00:00:46,079
lights go on or oh my gosh who knew it

10
00:00:51,270 --> 00:00:48,399
could be like that and to me that's what

11
00:00:54,389 --> 00:00:51,280
makes science cool we are an exploring

12
00:00:57,189 --> 00:00:54,399
species nasa is leading that exploration

13
00:00:58,709 --> 00:00:57,199

effort for humankind as we go forward as

14
00:01:00,790 --> 00:00:58,719
we develop these capabilities

15
00:01:02,549 --> 00:01:00,800
technologies come along that will take

16
00:01:05,109 --> 00:01:02,559
into account that will make these

17
00:01:07,590 --> 00:01:05,119
missions easier long-term than we can

18
00:01:09,270 --> 00:01:07,600
imagine right now we do know certain

19
00:01:12,149 --> 00:01:09,280
technologies that are needed that we

20
00:01:14,310 --> 00:01:12,159
will be working on within nasa that will

21
00:01:15,910 --> 00:01:14,320
contribute and we know that we need them

22
00:01:17,749 --> 00:01:15,920
and the commercial world will develop

23
00:01:19,510 --> 00:01:17,759
technologies that will apply to these

24
00:01:28,149 --> 00:01:19,520
missions that will make them so much

25
00:01:32,069 --> 00:01:30,390
i think about our nas education programs

26
00:01:34,550 --> 00:01:32,079
and projects that can

27
00:01:37,429 --> 00:01:34,560
give a kid a hands-on experiential

28
00:01:39,270 --> 00:01:37,439
moment where they can see wow i can be a

29
00:01:40,950 --> 00:01:39,280
scientist while i can be an engineer

30
00:01:42,710 --> 00:01:40,960
while i can develop the next rocket ship

31
00:01:46,230 --> 00:01:42,720
that takes us to mars

32
00:01:47,830 --> 00:01:46,240
or develops a cure for cancer so the

33
00:01:50,950 --> 00:01:47,840
things and the programs that we have at

34
00:01:53,429 --> 00:01:50,960
nasa will ignite that curiosity in the

35
00:01:55,429 --> 00:01:53,439
mind of a child as well as trying to

36
00:01:59,510 --> 00:01:55,439
influence and inspire and give curricula

37
00:02:01,749 --> 00:01:59,520
to teachers to help impact a much bigger

38
00:02:04,230 --> 00:02:01,759

footprint on this nation

39
00:02:05,990 --> 00:02:04,240
the wonderful things we get from station

40
00:02:07,910 --> 00:02:06,000
are just really unknown at this point

41
00:02:10,229 --> 00:02:07,920
but we've got good sound research plans

42
00:02:11,750 --> 00:02:10,239
we've got good strong products in place

43
00:02:13,190 --> 00:02:11,760
there's no telling what the space

44
00:02:15,750 --> 00:02:13,200
station will bring with this strong

45
00:02:17,589 --> 00:02:15,760
research background and and

46
00:02:20,229 --> 00:02:17,599
information and activities we've got

47
00:02:22,470 --> 00:02:20,239
planned for the space station

48
00:02:25,190 --> 00:02:22,480
with programs like the nasa explorer

49
00:02:27,750 --> 00:02:25,200
schools summer of innovation or even

50
00:02:28,550 --> 00:02:27,760
teaching from space where we can beam

51
00:02:30,390 --> 00:02:28,560
down

52
00:02:32,869 --> 00:02:30,400
instructions from the international

53
00:02:36,390 --> 00:02:32,879
space station into classrooms across the

54
00:02:38,630 --> 00:02:36,400
nation to inspire students and teachers

55
00:02:40,150 --> 00:02:38,640
to reach for new heights and believe

56
00:02:41,830 --> 00:02:40,160
that they can do anything they put their

57
00:02:44,949 --> 00:02:41,840
minds to through their dreams and

58
00:02:47,589 --> 00:02:44,959
desires to be scientists engineers or

59
00:02:49,910 --> 00:02:47,599
mathematicians we must inspire not only

60
00:02:53,509 --> 00:02:49,920
teachers but students to have the

61
00:02:55,350 --> 00:02:53,519
curiosity to reach for the stars

62
00:02:57,750 --> 00:02:55,360
all the things that we learn in the

63
00:03:01,110 --> 00:02:57,760

science programs and the technologies we

64
00:03:02,630 --> 00:03:01,120
develop are critical to to understanding

65
00:03:04,710 --> 00:03:02,640
those types of missions and what they

66
00:03:06,630 --> 00:03:04,720
can accomplish personally i think that

67
00:03:09,190 --> 00:03:06,640
through investments in innovation and

68
00:03:11,910 --> 00:03:09,200
technology we can create

69
00:03:13,910 --> 00:03:11,920
the high-tech solutions that we need for

70
00:03:16,149 --> 00:03:13,920
problems of tomorrow we can create new

71
00:03:18,390 --> 00:03:16,159
industries new businesses

72
00:03:19,910 --> 00:03:18,400
and high-tech jobs around this country

73
00:03:22,149 --> 00:03:19,920
i believe more than any other

74
00:03:23,509 --> 00:03:22,159
organization in the world

75
00:03:26,309 --> 00:03:23,519
nasa

76
00:03:29,830 --> 00:03:26,319
brings together science engineering and

77
00:03:33,270 --> 00:03:29,840
technology not just to serve humankind

78
00:03:35,670 --> 00:03:33,280
but also to inspire humankind there is

79
00:03:37,990 --> 00:03:35,680
so much out there to discover

80
00:03:40,390 --> 00:03:38,000
there's so much about our own planet to

81
00:03:41,589 --> 00:03:40,400
learn to position us for success in the

82
00:03:43,589 --> 00:03:41,599
future

83
00:03:51,589 --> 00:03:43,599
and we're pursuing that

84
00:03:55,509 --> 00:03:53,589
good morning and welcome to the

85
00:03:57,190 --> 00:03:55,519
university of maryland college park the

86
00:03:58,550 --> 00:03:57,200
riggs alumni center

87
00:04:01,030 --> 00:03:58,560
here in college park maryland for

88
00:04:03,750 --> 00:04:01,040

today's nasa future forum this is the

89
00:04:05,190 --> 00:04:03,760
first future forum of 2011 for nasa and

90
00:04:06,309 --> 00:04:05,200
we're very excited to have you here in

91
00:04:09,030 --> 00:04:06,319
the audience

92
00:04:10,869 --> 00:04:09,040
and our audience live on nasa television

93
00:04:15,350 --> 00:04:10,879
we're also streaming today's program on

94
00:04:18,949 --> 00:04:17,030
ntv

95
00:04:21,189 --> 00:04:18,959
for those of you who use social media

96
00:04:23,590 --> 00:04:21,199
we're going to be taking questions from

97
00:04:26,230 --> 00:04:23,600
twitter followers today

98
00:04:28,710 --> 00:04:26,240
you can follow today's program on

99
00:04:30,710 --> 00:04:28,720
pound nasa nasafuture

100
00:04:32,950 --> 00:04:30,720
or you can ask questions on our nasa

101
00:04:35,430 --> 00:04:32,960
technology account at

102
00:04:37,030 --> 00:04:35,440
nasa underscore technology we have a

103
00:04:38,870 --> 00:04:37,040
great program today with a number of

104
00:04:42,230 --> 00:04:38,880
panels who are going to be discussing

105
00:04:43,990 --> 00:04:42,240
nasa's future and our role in america

106
00:04:45,670 --> 00:04:44,000
the economy of maryland and the economy

107
00:04:46,790 --> 00:04:45,680
of the nation

108
00:04:48,790 --> 00:04:46,800
uh

109
00:04:50,870 --> 00:04:48,800
today we have our first panel is going

110
00:04:53,350 --> 00:04:50,880
to be starting off with some leaders

111
00:04:56,070 --> 00:04:53,360
from nasa followed by a number of panels

112
00:04:57,270 --> 00:04:56,080
on innovation technology education and

113
00:04:58,790 --> 00:04:57,280

the future

114
00:05:00,790 --> 00:04:58,800
i'd like to take this opportunity to

115
00:05:02,950 --> 00:05:00,800
welcome our host for today

116
00:05:04,230 --> 00:05:02,960
dr pat o'shea who is vice president of

117
00:05:13,189 --> 00:05:04,240
research here at the university of

118
00:05:19,270 --> 00:05:16,469
friends colleagues distinguished guests

119
00:05:21,670 --> 00:05:19,280
i am delighted to welcome you

120
00:05:24,790 --> 00:05:21,680
on behalf of the university of maryland

121
00:05:26,550 --> 00:05:24,800
to the nasa future forum

122
00:05:29,670 --> 00:05:26,560
nasa is the

123
00:05:32,469 --> 00:05:29,680
modern embodiment of our primal desire

124
00:05:35,670 --> 00:05:32,479
to understand the heavens

125
00:05:38,950 --> 00:05:35,680
in its 53-year history the technologies

126
00:05:39,749 --> 00:05:38,960
developed far and by nasa

127
00:05:46,469 --> 00:05:39,759
have

128
00:05:47,749 --> 00:05:46,479
critical advances in how we deal with

129
00:05:48,950 --> 00:05:47,759
water

130
00:05:49,990 --> 00:05:48,960
healthcare

131
00:05:51,430 --> 00:05:50,000
energy

132
00:05:53,510 --> 00:05:51,440
the environment

133
00:05:56,309 --> 00:05:53,520
food information

134
00:05:58,150 --> 00:05:56,319
infrastructure transportation and

135
00:06:00,710 --> 00:05:58,160
security

136
00:06:02,629 --> 00:06:00,720
as you can probably tell from my accent

137
00:06:06,469 --> 00:06:02,639
i grew up in ireland and one of my

138
00:06:09,510 --> 00:06:06,479

earliest memories in the 1960s is of a

139
00:06:10,469 --> 00:06:09,520
drawing i made of a big rocket a saturn

140
00:06:14,230 --> 00:06:10,479
v

141
00:06:17,590 --> 00:06:14,240
i drew usa and nasa on the side

142
00:06:20,150 --> 00:06:17,600
and that was the apollo 11

143
00:06:23,029 --> 00:06:20,160
rocket and later a few years later i

144
00:06:24,870 --> 00:06:23,039
remember after apollo 13 the astronauts

145
00:06:27,670 --> 00:06:24,880
visited my hometown

146
00:06:29,510 --> 00:06:27,680
and had a forum in the opera house and i

147
00:06:31,029 --> 00:06:29,520
snuck in i didn't have a ticket i was a

148
00:06:32,950 --> 00:06:31,039
young kid and i remember standing in the

149
00:06:34,870 --> 00:06:32,960
back and looking at those brave

150
00:06:36,230 --> 00:06:34,880
astronauts and all of the thinking about

151
00:06:38,230 --> 00:06:36,240
all the things they'd done and all the

152
00:06:40,309 --> 00:06:38,240
scientists and engineers that had

153
00:06:41,830 --> 00:06:40,319
supported them both before the launch

154
00:06:43,749 --> 00:06:41,840
and during the critical

155
00:06:47,189 --> 00:06:43,759
stages of the return to earth and that

156
00:06:49,430 --> 00:06:47,199
inspired me to become a scientist and a

157
00:06:51,990 --> 00:06:49,440
technologist like it has several

158
00:06:54,629 --> 00:06:52,000
generations of children

159
00:06:56,629 --> 00:06:54,639
worldwide so here i am now at the

160
00:06:59,189 --> 00:06:56,639
university of maryland which is a

161
00:07:01,749 --> 00:06:59,199
globally preeminent institution renowned

162
00:07:03,029 --> 00:07:01,759
for its powers in innovation and

163
00:07:05,909 --> 00:07:03,039

education

164
00:07:07,110 --> 00:07:05,919
as vice president and senior research

165
00:07:09,430 --> 00:07:07,120
officer

166
00:07:12,710 --> 00:07:09,440
i oversee an enterprise that closely

167
00:07:15,830 --> 00:07:12,720
couples creativity innovation

168
00:07:17,670 --> 00:07:15,840
entrepreneurship and education to create

169
00:07:20,710 --> 00:07:17,680
a brave new world

170
00:07:21,830 --> 00:07:20,720
and to educate the leaders of that brave

171
00:07:25,510 --> 00:07:21,840
new world

172
00:07:28,390 --> 00:07:25,520
as befits the nasa mission we are in the

173
00:07:31,510 --> 00:07:28,400
business of educating explorers here at

174
00:07:33,510 --> 00:07:31,520
maryland not simply training tourists

175
00:07:36,870 --> 00:07:33,520
at maryland we have been very active

176
00:07:37,909 --> 00:07:36,880
over many years in nasa projects ranging

177
00:07:42,469 --> 00:07:37,919
from

178
00:07:43,749 --> 00:07:42,479
comet hunting to climate monitoring

179
00:07:46,629 --> 00:07:43,759
in today's

180
00:07:48,309 --> 00:07:46,639
nasa forum we will actively discuss the

181
00:07:49,510 --> 00:07:48,319
role of technology

182
00:07:50,550 --> 00:07:49,520
innovation

183
00:07:54,230 --> 00:07:50,560
business

184
00:07:56,469 --> 00:07:54,240
science and education in our future

185
00:07:58,950 --> 00:07:56,479
space exploration plans

186
00:08:00,710 --> 00:07:58,960
and in sustaining economic development

187
00:08:02,550 --> 00:08:00,720
and competitiveness

188
00:08:03,830 --> 00:08:02,560

we have gathered together nasa

189
00:08:06,790 --> 00:08:03,840
leadership

190
00:08:08,790 --> 00:08:06,800
technologists scientists and engineers

191
00:08:11,430 --> 00:08:08,800
along with leaders from local business

192
00:08:12,390 --> 00:08:11,440
science technology and education to

193
00:08:15,350 --> 00:08:12,400
discuss

194
00:08:17,909 --> 00:08:15,360
and help guide the future role of nasa

195
00:08:20,790 --> 00:08:17,919
in advancing innovation technology

196
00:08:24,550 --> 00:08:20,800
science engineering and education in a

197
00:08:25,830 --> 00:08:24,560
way that benefits our community and the

198
00:08:29,909 --> 00:08:25,840
nation

199
00:08:32,630 --> 00:08:29,919
nasa today stands at a critical juncture

200
00:08:35,110 --> 00:08:32,640
will it adapt to new requirements placed

201
00:08:37,190 --> 00:08:35,120
on it by its own successes over the past

202
00:08:39,190 --> 00:08:37,200
half century

203
00:08:40,630 --> 00:08:39,200
and also by the changing economy and

204
00:08:43,750 --> 00:08:40,640
will it continue

205
00:08:47,110 --> 00:08:43,760
to contribute to our nation's progress

206
00:08:49,590 --> 00:08:47,120
in new ways will it continue to

207
00:08:52,550 --> 00:08:49,600
inspire budding scientists and engineers

208
00:08:56,310 --> 00:08:52,560
like it did me those many years ago

209
00:08:59,590 --> 00:08:56,320
nasa today seeks to fortify its crucial

210
00:09:01,670 --> 00:08:59,600
relationships with academia and business

211
00:09:04,070 --> 00:09:01,680
which now more than ever will be vital

212
00:09:05,350 --> 00:09:04,080
partners as nasa ventures into the

213
00:09:08,310 --> 00:09:05,360

future

214
00:09:10,470 --> 00:09:08,320
our forum today will explore major areas

215
00:09:13,509 --> 00:09:10,480
of interest and help attendees

216
00:09:16,790 --> 00:09:13,519
understand the issues the opportunities

217
00:09:19,670 --> 00:09:16,800
and the ways they can help ensure nasa's

218
00:09:22,710 --> 00:09:19,680
continued leadership

219
00:09:23,990 --> 00:09:22,720
thank you

220
00:09:26,870 --> 00:09:24,000
i would now

221
00:09:30,150 --> 00:09:26,880
like to introduce our most distinguished

222
00:09:31,670 --> 00:09:30,160
guest nasa administrator administrator

223
00:09:34,230 --> 00:09:31,680
charles bolden

224
00:09:37,269 --> 00:09:34,240
he is an extraordinarily accomplished

225
00:09:40,470 --> 00:09:37,279
individual a highly decorated graduate

226
00:09:43,910 --> 00:09:40,480
of the new us naval academy in annapolis

227
00:09:45,030 --> 00:09:43,920
major general in the marine corps and

228
00:09:47,430 --> 00:09:45,040
astronaut

229
00:09:49,910 --> 00:09:47,440
and in 2009 he was named nasa

230
00:10:02,550 --> 00:09:49,920
administrator by president obama please

231
00:10:06,710 --> 00:10:04,230
thank you all very much and uh

232
00:10:08,550 --> 00:10:06,720
especially thank you dr shay um

233
00:10:11,030 --> 00:10:08,560
i was trying to applaud for him and

234
00:10:14,150 --> 00:10:11,040
nobody helped me so uh

235
00:10:15,750 --> 00:10:14,160
i liked everything he said i am uh

236
00:10:17,350 --> 00:10:15,760
since i'm the nasa administrator i'm

237
00:10:19,910 --> 00:10:17,360
gonna try something here today i brought

238
00:10:22,310 --> 00:10:19,920

my ipad

239
00:10:24,550 --> 00:10:22,320
so if you see me stumble

240
00:10:26,790 --> 00:10:24,560
several things may have happened

241
00:10:28,630 --> 00:10:26,800
the battery may have died

242
00:10:30,630 --> 00:10:28,640
i may have hit the wrong button and lost

243
00:10:32,630 --> 00:10:30,640
my place in my remarks

244
00:10:34,470 --> 00:10:32,640
or i may be scrambling to get my paper

245
00:10:37,509 --> 00:10:34,480
back up so uh

246
00:10:39,430 --> 00:10:37,519
so bear with me it's it's really um

247
00:10:40,550 --> 00:10:39,440
special to be here today i see a lot of

248
00:10:43,590 --> 00:10:40,560
friends

249
00:10:48,069 --> 00:10:43,600
and former colleagues and that's great

250
00:10:49,990 --> 00:10:48,079
um what i don't see are a lot of faces

251
00:10:52,790 --> 00:10:50,000
except in the back

252
00:10:55,750 --> 00:10:52,800
uh i would really like to see a lot more

253
00:10:57,750 --> 00:10:55,760
faces of people

254
00:10:59,030 --> 00:10:57,760
like several of those in the back who

255
00:11:01,350 --> 00:10:59,040
look like

256
00:11:04,150 --> 00:11:01,360
they have not been around

257
00:11:05,110 --> 00:11:04,160
for the last 10 or 20 years

258
00:11:08,389 --> 00:11:05,120
so

259
00:11:10,949 --> 00:11:08,399
i'm disappointed in that regard

260
00:11:12,069 --> 00:11:10,959
however i hope as the day goes by you

261
00:11:13,910 --> 00:11:12,079
know i hope they're looking at the

262
00:11:15,670 --> 00:11:13,920
agenda and they're seeing that they're

263
00:11:19,190 --> 00:11:15,680

going to get all this

264
00:11:21,110 --> 00:11:19,200
uh bureaucratic hoopla out of the way

265
00:11:22,630 --> 00:11:21,120
and they're just waiting for the panels

266
00:11:24,949 --> 00:11:22,640
and then they will show up they will

267
00:11:26,630 --> 00:11:24,959
come streaming in i see the first panel

268
00:11:28,230 --> 00:11:26,640
members over there going yeah they they

269
00:11:30,790 --> 00:11:28,240
told them you know come it we're not

270
00:11:32,870 --> 00:11:30,800
gonna start on time so come about nine

271
00:11:34,710 --> 00:11:32,880
and you can catch the first panel so i

272
00:11:36,790 --> 00:11:34,720
am hoping that we will see more then but

273
00:11:39,750 --> 00:11:36,800
this is um it's an incredible

274
00:11:42,150 --> 00:11:39,760
opportunity for us and um

275
00:11:44,949 --> 00:11:42,160
congresswoman edwards is on her way and

276
00:11:46,550 --> 00:11:44,959
will be here and if i don't i'm going to

277
00:11:48,069 --> 00:11:46,560
say something now that hopefully someone

278
00:11:50,230 --> 00:11:48,079
will pass to her

279
00:11:52,389 --> 00:11:50,240
because i do want to thank the congress

280
00:11:54,150 --> 00:11:52,399
for the bipartisan support that they

281
00:11:56,550 --> 00:11:54,160
continue to give to nasa i know for

282
00:11:58,550 --> 00:11:56,560
those of you who who don't see what we

283
00:12:00,629 --> 00:11:58,560
go through every day you don't you don't

284
00:12:02,949 --> 00:12:00,639
believe that

285
00:12:05,350 --> 00:12:02,959
but we continue to get bipartisan

286
00:12:07,590 --> 00:12:05,360
support on the hill

287
00:12:10,230 --> 00:12:07,600
nasa and space exploration and

288
00:12:11,750 --> 00:12:10,240

aeronautics and things like that still

289
00:12:13,750 --> 00:12:11,760
remain something that tends to be

290
00:12:15,350 --> 00:12:13,760
bipartisan and

291
00:12:17,829 --> 00:12:15,360
you know we have strong advocates no

292
00:12:20,069 --> 00:12:17,839
matter what party uh no matter what

293
00:12:22,150 --> 00:12:20,079
segment of what party

294
00:12:23,910 --> 00:12:22,160
since even the parties today have

295
00:12:25,829 --> 00:12:23,920
parties

296
00:12:27,430 --> 00:12:25,839
so i do want to thank her for the

297
00:12:29,910 --> 00:12:27,440
leadership that she

298
00:12:31,750 --> 00:12:29,920
uh continues to exhibit in in the

299
00:12:34,230 --> 00:12:31,760
congress as a

300
00:12:36,550 --> 00:12:34,240
a vocal advocate for nasa

301
00:12:38,629 --> 00:12:36,560
the maryland congressional delegation as

302
00:12:39,829 --> 00:12:38,639
a matter of fact has been particularly

303
00:12:41,910 --> 00:12:39,839
um

304
00:12:43,509 --> 00:12:41,920
enormously helpful to us

305
00:12:45,269 --> 00:12:43,519
in ensuring that the goddard space

306
00:12:47,670 --> 00:12:45,279
flight center the management of the

307
00:12:49,110 --> 00:12:47,680
hubble space telescope and other nasa

308
00:12:50,790 --> 00:12:49,120
assets in maryland have been fully

309
00:12:53,110 --> 00:12:50,800
supported and i i thank the entire

310
00:12:55,910 --> 00:12:53,120
delegation for their steadfast support

311
00:12:59,269 --> 00:12:55,920
of the agency and the aerospace sector

312
00:13:01,590 --> 00:12:59,279
um i want to thank you again dr o'shea

313
00:13:04,389 --> 00:13:01,600

you and the university of maryland um

314
00:13:08,069 --> 00:13:04,399
for hosting us today because this is the

315
00:13:10,870 --> 00:13:08,079
i'm not sure that this is the first ever

316
00:13:14,310 --> 00:13:10,880
everybody says no okay

317
00:13:16,310 --> 00:13:14,320
the first of 19 of 2011

318
00:13:17,590 --> 00:13:16,320
okay so i can say it's the first this

319
00:13:22,550 --> 00:13:17,600
year

320
00:13:24,470 --> 00:13:22,560
our future forums

321
00:13:26,389 --> 00:13:24,480
and uh when bobby braun and i were

322
00:13:28,949 --> 00:13:26,399
talking about it the other day we hope

323
00:13:30,550 --> 00:13:28,959
that there will be other universities

324
00:13:32,069 --> 00:13:30,560
around the nation that will follow the

325
00:13:34,470 --> 00:13:32,079
example that the university of maryland

326
00:13:36,310 --> 00:13:34,480
is setting today so that we can we can

327
00:13:39,670 --> 00:13:36,320
take this show on the road and and have

328
00:13:41,750 --> 00:13:39,680
an opportunity to listen to uh the

329
00:13:44,230 --> 00:13:41,760
american public as much as we talk with

330
00:13:45,910 --> 00:13:44,240
them because that's really important uh

331
00:13:47,910 --> 00:13:45,920
the future forums are wonderful

332
00:13:51,110 --> 00:13:47,920
gatherings and

333
00:13:52,870 --> 00:13:51,120
mainly because nasa is always has been

334
00:13:55,509 --> 00:13:52,880
and always will be in the future

335
00:13:58,069 --> 00:13:55,519
business it's been our job to conf to

336
00:14:00,069 --> 00:13:58,079
conceive what what might be possible

337
00:14:01,269 --> 00:14:00,079
even though it might seem out of reach

338
00:14:03,030 --> 00:14:01,279

and then marshall the human and

339
00:14:05,829 --> 00:14:03,040
technological resources to make it a

340
00:14:07,110 --> 00:14:05,839
reality uh you know i i cannot help my

341
00:14:09,670 --> 00:14:07,120
wife

342
00:14:11,269 --> 00:14:09,680
hates to see me come in the house and

343
00:14:13,430 --> 00:14:11,279
turn on the television because she knows

344
00:14:16,790 --> 00:14:13,440
i'm gonna switch to the talking heads

345
00:14:20,389 --> 00:14:16,800
and i just i just have to do it because

346
00:14:24,470 --> 00:14:22,550
yeah you got it

347
00:14:27,910 --> 00:14:24,480
but it's still interesting to listen to

348
00:14:30,870 --> 00:14:27,920
them and to listen to people who

349
00:14:33,590 --> 00:14:30,880
supposedly are leaders today who

350
00:14:36,550 --> 00:14:33,600
speak with such pessimism

351
00:14:39,030 --> 00:14:36,560
you know we can't do that we we we won't

352
00:14:40,790 --> 00:14:39,040
do that we are very optimistic about the

353
00:14:43,670 --> 00:14:40,800
future we're very optimistic about what

354
00:14:44,550 --> 00:14:43,680
can be done and and i think we're that

355
00:14:47,110 --> 00:14:44,560
way

356
00:14:49,110 --> 00:14:47,120
any of you who are nasa hands or used to

357
00:14:51,189 --> 00:14:49,120
be nasa employees or not are nasa

358
00:14:52,710 --> 00:14:51,199
employees know what i mean when i say we

359
00:14:53,990 --> 00:14:52,720
take science fiction and turn it into

360
00:14:55,829 --> 00:14:54,000
science fact

361
00:14:58,550 --> 00:14:55,839
uh and that's the way we live every day

362
00:15:00,870 --> 00:14:58,560
and and it's fun uh we think it's

363
00:15:01,829 --> 00:15:00,880

important and we hope that today you'll

364
00:15:03,990 --> 00:15:01,839
help us

365
00:15:06,629 --> 00:15:04,000
to uh to

366
00:15:09,430 --> 00:15:06,639
at least advance uh the efforts that we

367
00:15:11,110 --> 00:15:09,440
have right now the agency uh has

368
00:15:12,870 --> 00:15:11,120
completed one enormously effective

369
00:15:14,629 --> 00:15:12,880
chapter in our history with the

370
00:15:16,629 --> 00:15:14,639
retirement of the space shuttle

371
00:15:18,790 --> 00:15:16,639
and we're writing the next one as we

372
00:15:20,230 --> 00:15:18,800
gather here today the shuttle was an

373
00:15:22,150 --> 00:15:20,240
experimental vehicle throughout its

374
00:15:23,829 --> 00:15:22,160
lifetime and you know

375
00:15:25,590 --> 00:15:23,839
a lot of people don't want to admit that

376
00:15:28,389 --> 00:15:25,600
shuttle was never operational shuttle

377
00:15:31,030 --> 00:15:28,399
was always an experimental vehicle i i

378
00:15:32,230 --> 00:15:31,040
don't know that any of any of us in nasa

379
00:15:34,310 --> 00:15:32,240
ever thought

380
00:15:36,069 --> 00:15:34,320
that nasa would be something that we

381
00:15:38,790 --> 00:15:36,079
could truly consider

382
00:15:40,949 --> 00:15:38,800
uh operational you know it's just when

383
00:15:43,509 --> 00:15:40,959
you have something that's on the cutting

384
00:15:44,470 --> 00:15:43,519
edge of technology in many respects

385
00:15:49,509 --> 00:15:44,480
uh

386
00:15:50,870 --> 00:15:49,519
i don't know it's a it's a strange

387
00:15:54,710 --> 00:15:50,880
vehicle because when you're in the

388
00:15:56,550 --> 00:15:54,720

cockpit you're in the 1970s

389
00:15:59,110 --> 00:15:56,560
and when you look at things like the

390
00:16:01,350 --> 00:15:59,120
main engines and the systems

391
00:16:02,470 --> 00:16:01,360
alpha magnetic spectrometer some of the

392
00:16:03,829 --> 00:16:02,480
experiments that it took to the

393
00:16:06,150 --> 00:16:03,839
international space station the

394
00:16:07,749 --> 00:16:06,160
international space station itself

395
00:16:08,389 --> 00:16:07,759
it's the cutting edge of technology and

396
00:16:12,069 --> 00:16:08,399
it's

397
00:16:14,710 --> 00:16:12,079
dreams to be quite honest things that

398
00:16:17,670 --> 00:16:14,720
have not even been fulfilled yet so

399
00:16:21,030 --> 00:16:17,680
it it does show that while we want to

400
00:16:24,550 --> 00:16:21,040
advance technology and science uh in

401
00:16:27,269 --> 00:16:24,560
some cases you have to use uh you know

402
00:16:29,910 --> 00:16:27,279
modern day current day assets to help

403
00:16:32,230 --> 00:16:29,920
you do that so um i say that only

404
00:16:34,629 --> 00:16:32,240
because we have a big

405
00:16:36,790 --> 00:16:34,639
battle going on right now both within

406
00:16:37,829 --> 00:16:36,800
nasa and without

407
00:16:40,629 --> 00:16:37,839
between

408
00:16:43,350 --> 00:16:40,639
moving into the future and preserving

409
00:16:44,470 --> 00:16:43,360
some of the past and and i contend that

410
00:16:46,629 --> 00:16:44,480
you can't

411
00:16:49,189 --> 00:16:46,639
you know if you if you forget your past

412
00:16:50,389 --> 00:16:49,199
and you just kind of shake it off

413
00:16:51,749 --> 00:16:50,399

you don't have anything on which to

414
00:16:53,509 --> 00:16:51,759
stand

415
00:16:55,509 --> 00:16:53,519
when you're trying to reach high points

416
00:16:57,509 --> 00:16:55,519
or trying to reach a top shelf you've

417
00:16:59,430 --> 00:16:57,519
got to have something to stand on

418
00:17:01,350 --> 00:16:59,440
and you know when you kick the things

419
00:17:03,829 --> 00:17:01,360
that you stand on away

420
00:17:06,390 --> 00:17:03,839
and think that you're just going to jump

421
00:17:10,230 --> 00:17:06,400
make big leaps then i think we're

422
00:17:12,069 --> 00:17:10,240
we're maybe missing the boat

423
00:17:14,390 --> 00:17:12,079
for starters as i said you know shuttle

424
00:17:16,150 --> 00:17:14,400
was was critical to the assembly of the

425
00:17:18,069 --> 00:17:16,160
international space station it's the

426
00:17:20,549 --> 00:17:18,079
size of a football field with human

427
00:17:22,870 --> 00:17:20,559
beings on it 24 7 for more than 10 years

428
00:17:24,870 --> 00:17:22,880
now which will produce breakthroughs for

429
00:17:27,829 --> 00:17:24,880
the next generation of exploration until

430
00:17:29,750 --> 00:17:27,839
at least 2020 and and we have just about

431
00:17:32,310 --> 00:17:29,760
completed the certification of of the

432
00:17:34,150 --> 00:17:32,320
international space station through 2028

433
00:17:36,310 --> 00:17:34,160
we'll continue to study what the shuttle

434
00:17:37,909 --> 00:17:36,320
taught us as we work with our industry

435
00:17:40,070 --> 00:17:37,919
partners to develop the next generation

436
00:17:42,310 --> 00:17:40,080
of transportation systems to low earth

437
00:17:45,350 --> 00:17:42,320
orbit and beyond

438
00:17:47,669 --> 00:17:45,360

nasa is now handing off the transport to

439
00:17:49,590 --> 00:17:47,679
the space station to american industry

440
00:17:51,430 --> 00:17:49,600
so that we can focus on a new series of

441
00:17:53,510 --> 00:17:51,440
firsts like sending humans to an

442
00:17:55,430 --> 00:17:53,520
asteroid and eventually to mars

443
00:17:57,750 --> 00:17:55,440
we have the opportunity to raise the bar

444
00:17:59,590 --> 00:17:57,760
to demonstrate what human beings can do

445
00:18:01,029 --> 00:17:59,600
if we're challenged and inspired to

446
00:18:03,510 --> 00:18:01,039
reach for something just out of our

447
00:18:05,430 --> 00:18:03,520
grasp but not out of our sights let me

448
00:18:08,470 --> 00:18:05,440
take a break here um

449
00:18:10,230 --> 00:18:08,480
just a show of hands how many of you

450
00:18:10,950 --> 00:18:10,240
think you know what the gap is going to

451
00:18:14,630 --> 00:18:10,960
be

452
00:18:16,870 --> 00:18:14,640
things to low earth orbit

453
00:18:18,630 --> 00:18:16,880
uh between the end of shuttle and and

454
00:18:20,390 --> 00:18:18,640
the onset of the next american

455
00:18:22,070 --> 00:18:20,400
capability to do that who thinks they

456
00:18:26,150 --> 00:18:22,080
know that

457
00:18:28,390 --> 00:18:26,160
uh who who who thinks it's in terms of

458
00:18:30,310 --> 00:18:28,400
years

459
00:18:34,070 --> 00:18:30,320
whether you know or not

460
00:18:36,950 --> 00:18:34,080
who thinks it's in terms of months

461
00:18:39,510 --> 00:18:36,960
uh it's in terms of months

462
00:18:41,270 --> 00:18:39,520
we will be flying american vehicles to

463
00:18:43,669 --> 00:18:41,280

the international space station in less

464
00:18:45,830 --> 00:18:43,679
time than it took us to recover from

465
00:18:48,230 --> 00:18:45,840
challenger or colombia

466
00:18:50,789 --> 00:18:48,240
uh and that is that is a message that i

467
00:18:52,789 --> 00:18:50,799
have failed to get out that is a message

468
00:18:55,029 --> 00:18:52,799
that we and nasa that is a message that

469
00:18:56,470 --> 00:18:55,039
the american admin that the that our

470
00:18:59,029 --> 00:18:56,480
that the administration has failed to

471
00:19:01,669 --> 00:18:59,039
get out um you know

472
00:19:02,789 --> 00:19:01,679
orbital sciences and spacex are just two

473
00:19:05,909 --> 00:19:02,799
companies

474
00:19:08,390 --> 00:19:05,919
that are that are industry bidders

475
00:19:12,150 --> 00:19:08,400
uh to take over the responsibility for

476
00:19:15,669 --> 00:19:13,669
last december

477
00:19:18,549 --> 00:19:15,679
spacex demonstrated

478
00:19:20,789 --> 00:19:18,559
their ability to get a vehicle to low

479
00:19:23,510 --> 00:19:20,799
earth orbit to orbit it

480
00:19:25,029 --> 00:19:23,520
to safely deorbit and recover it intact

481
00:19:27,350 --> 00:19:25,039
so they they've demonstrated that

482
00:19:29,830 --> 00:19:27,360
capability that's never been done by a

483
00:19:31,669 --> 00:19:29,840
private company in my knowledge

484
00:19:33,510 --> 00:19:31,679
orbital sciences from right up here in

485
00:19:36,070 --> 00:19:33,520
dulles virginia is on the verge of

486
00:19:37,830 --> 00:19:36,080
flying their first demonstration and in

487
00:19:39,990 --> 00:19:37,840
in both cases in the cases of both

488
00:19:41,830 --> 00:19:40,000

companies uh they will have flown two

489
00:19:44,470 --> 00:19:41,840
demonstration flights for us and what we

490
00:19:47,430 --> 00:19:44,480
call the cots program uh that's that's

491
00:19:50,390 --> 00:19:47,440
sort of a very short uh development

492
00:19:52,470 --> 00:19:50,400
program and next year 2012

493
00:19:54,630 --> 00:19:52,480
they will be we will be

494
00:19:57,430 --> 00:19:54,640
we will be paying them

495
00:19:59,190 --> 00:19:57,440
fee for service to take cargo to the

496
00:20:01,909 --> 00:19:59,200
international space station

497
00:20:03,350 --> 00:20:01,919
so depending on how well things go for

498
00:20:05,830 --> 00:20:03,360
for spacex

499
00:20:08,789 --> 00:20:05,840
in their now scheduled november slash

500
00:20:10,710 --> 00:20:08,799
december final demonstration flight they

501
00:20:12,310 --> 00:20:10,720
could be flying their first cargo

502
00:20:14,470 --> 00:20:12,320
mission for pay

503
00:20:16,470 --> 00:20:14,480
as early as next february

504
00:20:19,669 --> 00:20:16,480
so we're months away

505
00:20:21,750 --> 00:20:19,679
not years from an american capability to

506
00:20:23,430 --> 00:20:21,760
deliver cargo to the international space

507
00:20:26,149 --> 00:20:23,440
station so don't let anybody tell you

508
00:20:28,470 --> 00:20:26,159
otherwise we're not dependent on

509
00:20:31,190 --> 00:20:28,480
uh the russians the japanese the

510
00:20:32,630 --> 00:20:31,200
europeans uh we are developing an

511
00:20:34,950 --> 00:20:32,640
american capability that will be

512
00:20:36,950 --> 00:20:34,960
available very soon

513
00:20:38,549 --> 00:20:36,960

that does not mean you throw away your

514
00:20:40,870 --> 00:20:38,559
international partners

515
00:20:43,510 --> 00:20:40,880
because we still need them

516
00:20:45,909 --> 00:20:43,520
to fill out the gap for being able to

517
00:20:48,549 --> 00:20:45,919
take the amount of cargo that we want to

518
00:20:50,230 --> 00:20:48,559
take to the international space station

519
00:20:51,990 --> 00:20:50,240
president obama has given us a mission

520
00:20:53,830 --> 00:20:52,000
with a capital m

521
00:20:55,750 --> 00:20:53,840
to focus again on the big picture of

522
00:20:58,070 --> 00:20:55,760
exploration in the crucial research and

523
00:20:59,990 --> 00:20:58,080
technological capabilities that will be

524
00:21:00,870 --> 00:21:00,000
required for us to move beyond low-earth

525
00:21:02,549 --> 00:21:00,880
orbit

526
00:21:04,789 --> 00:21:02,559
the president is asking us to harness

527
00:21:06,549 --> 00:21:04,799
that american spirit of innovation the

528
00:21:09,430 --> 00:21:06,559
drive to solve problems and create

529
00:21:11,669 --> 00:21:09,440
capabilities that is so embedded in our

530
00:21:14,470 --> 00:21:11,679
story and has led us to the moon

531
00:21:16,549 --> 00:21:14,480
to great observatories and to humans

532
00:21:17,990 --> 00:21:16,559
living and working in space possibly

533
00:21:19,750 --> 00:21:18,000
indefinitely

534
00:21:20,950 --> 00:21:19,760
that american ingenuity is alive and

535
00:21:23,110 --> 00:21:20,960
well

536
00:21:26,310 --> 00:21:23,120
it will fire up our economy and help us

537
00:21:28,470 --> 00:21:26,320
create and win the future but only if we

538
00:21:31,110 --> 00:21:28,480

put aside our differences and come

539
00:21:33,750 --> 00:21:31,120
together to work hard dream big and

540
00:21:36,630 --> 00:21:33,760
imagine endless possibilities

541
00:21:39,830 --> 00:21:36,640
working together nasa academia and

542
00:21:41,909 --> 00:21:39,840
industry will create new technologies

543
00:21:43,590 --> 00:21:41,919
develop new capabilities and increase

544
00:21:46,950 --> 00:21:43,600
the knowledge and understanding of the

545
00:21:48,710 --> 00:21:46,960
fragile world on which we live

546
00:21:51,110 --> 00:21:48,720
and that i think

547
00:21:52,630 --> 00:21:51,120
is the essence of what you will be doing

548
00:21:54,870 --> 00:21:52,640
here today

549
00:21:57,270 --> 00:21:54,880
and that's what's happening right now

550
00:21:58,789 --> 00:21:57,280
across the board in nasa's work

551
00:22:01,669 --> 00:21:58,799
just last week

552
00:22:03,669 --> 00:22:01,679
we sent juno soaring to jupiter

553
00:22:06,230 --> 00:22:03,679
where unprecedented images of the gas

554
00:22:08,950 --> 00:22:06,240
giant's poles and data about its surface

555
00:22:12,149 --> 00:22:08,960
and core will be made possible

556
00:22:14,310 --> 00:22:12,159
by efficient by efficiency advances in

557
00:22:17,510 --> 00:22:14,320
our solar cell technology

558
00:22:19,990 --> 00:22:17,520
pursued by nasa over the past few years

559
00:22:22,470 --> 00:22:20,000
juno will operate farther from the sun

560
00:22:23,590 --> 00:22:22,480
than any solar powered spacecraft we've

561
00:22:25,669 --> 00:22:23,600
ever flown

562
00:22:27,830 --> 00:22:25,679
that's no small feat

563
00:22:29,990 --> 00:22:27,840

this capability advance is applicable to

564
00:22:32,870 --> 00:22:30,000
nate to nasa's future robotic and human

565
00:22:35,510 --> 00:22:32,880
exploration missions and may also make a

566
00:22:36,470 --> 00:22:35,520
difference to our energy future here on

567
00:22:37,669 --> 00:22:36,480
earth

568
00:22:38,630 --> 00:22:37,679
last month

569
00:22:40,149 --> 00:22:38,640
dawn

570
00:22:42,630 --> 00:22:40,159
arrived in orbit

571
00:22:44,789 --> 00:22:42,640
around the asteroid vesta and what it

572
00:22:47,029 --> 00:22:44,799
learns could help inform a planned human

573
00:22:49,510 --> 00:22:47,039
mission to such a body

574
00:22:51,270 --> 00:22:49,520
tomorrow reporters down in florida will

575
00:22:53,830 --> 00:22:51,280
be getting a last look at the mars

576
00:22:55,190 --> 00:22:53,840
science laboratory appropriately named

577
00:22:57,350 --> 00:22:55,200
curiosity

578
00:22:59,510 --> 00:22:57,360
before it's mated with its decent stage

579
00:23:00,549 --> 00:22:59,520
and we move closer to its november

580
00:23:03,190 --> 00:23:00,559
launch

581
00:23:05,590 --> 00:23:03,200
curiosity will have more high-powered

582
00:23:07,110 --> 00:23:05,600
science instruments on mars than we've

583
00:23:09,110 --> 00:23:07,120
ever had before

584
00:23:11,350 --> 00:23:09,120
and it's a step along the path to

585
00:23:12,630 --> 00:23:11,360
eventual human missions to the red

586
00:23:15,510 --> 00:23:12,640
planet

587
00:23:18,390 --> 00:23:15,520
next month cesar returned to the moon to

588
00:23:20,230 --> 00:23:18,400

understand the gravity field with grail

589
00:23:23,029 --> 00:23:20,240
set of twin satellites

590
00:23:25,510 --> 00:23:23,039
the imposed preparatory project or npp

591
00:23:27,590 --> 00:23:25,520
launches in october to help us better

592
00:23:29,270 --> 00:23:27,600
understand our home planet

593
00:23:32,310 --> 00:23:29,280
and those are just a sampling of the

594
00:23:33,909 --> 00:23:32,320
huge array of missions already in space

595
00:23:36,630 --> 00:23:33,919
and coming up

596
00:23:39,029 --> 00:23:36,640
to reach the destinations of tomorrow

597
00:23:41,750 --> 00:23:39,039
we're working on a new crew capsule and

598
00:23:43,510 --> 00:23:41,760
studying the path we want to take

599
00:23:45,669 --> 00:23:43,520
for a heavy lift rocket that will take

600
00:23:47,830 --> 00:23:45,679
humans into deep space beyond low earth

601
00:23:49,350 --> 00:23:47,840
orbit where we've operated for the past

602
00:23:51,190 --> 00:23:49,360
30 years

603
00:23:53,669 --> 00:23:51,200
the initial investigation of in-space

604
00:23:56,149 --> 00:23:53,679
propulsion communications radiation

605
00:23:58,230 --> 00:23:56,159
protection and life support technologies

606
00:24:01,110 --> 00:23:58,240
that complement these two deep space

607
00:24:04,310 --> 00:24:01,120
systems are being prioritized and worked

608
00:24:06,710 --> 00:24:04,320
into the pipeline even as i speak

609
00:24:09,510 --> 00:24:06,720
looking further into our space future

610
00:24:11,830 --> 00:24:09,520
are the 30 visionary concepts that our

611
00:24:13,909 --> 00:24:11,840
chief technologist bobby braun's office

612
00:24:17,190 --> 00:24:13,919
just selected under the nasa innovative

613
00:24:19,430 --> 00:24:17,200

advanced concepts or niacc program

614
00:24:21,669 --> 00:24:19,440
the advanced concepts selected for study

615
00:24:24,390 --> 00:24:21,679
under niacc were chosen based on their

616
00:24:27,269 --> 00:24:24,400
potential to transform our future space

617
00:24:29,269 --> 00:24:27,279
missions enable new capabilities or

618
00:24:31,990 --> 00:24:29,279
significantly alter current approaches

619
00:24:34,549 --> 00:24:32,000
to launches launching building and

620
00:24:37,350 --> 00:24:34,559
operating space systems

621
00:24:39,510 --> 00:24:37,360
matched with the 80 graduate fellowships

622
00:24:41,909 --> 00:24:39,520
recently awarded for basic and applied

623
00:24:44,470 --> 00:24:41,919
research and technology areas aligned

624
00:24:46,310 --> 00:24:44,480
with nasa's future space missions

625
00:24:49,029 --> 00:24:46,320
the agency is beginning to create its

626
00:24:51,430 --> 00:24:49,039
future and invest in its future

627
00:24:53,269 --> 00:24:51,440
innovators today

628
00:24:55,590 --> 00:24:53,279
nasa's role has historically been

629
00:24:57,590 --> 00:24:55,600
crucial in seeding the technology and

630
00:24:59,990 --> 00:24:57,600
innovations that brought our nation's

631
00:25:01,830 --> 00:25:00,000
capabilities to the cutting edge made

632
00:25:04,149 --> 00:25:01,840
america the world's leader in space

633
00:25:06,070 --> 00:25:04,159
exploration and made a difference in our

634
00:25:07,990 --> 00:25:06,080
lives every day

635
00:25:09,669 --> 00:25:08,000
nasa's impact on our nation's

636
00:25:11,830 --> 00:25:09,679
technological future

637
00:25:13,110 --> 00:25:11,840
the workforce and the economy are based

638
00:25:15,830 --> 00:25:13,120

on investments

639
00:25:17,269 --> 00:25:15,840
and innovations that we had the courage

640
00:25:19,990 --> 00:25:17,279
to make

641
00:25:22,549 --> 00:25:20,000
these investments have helped us create

642
00:25:24,230 --> 00:25:22,559
galvanize and strengthen the expertise

643
00:25:25,669 --> 00:25:24,240
that has made nasa's achievements

644
00:25:26,789 --> 00:25:25,679
possible

645
00:25:29,350 --> 00:25:26,799
similarly

646
00:25:30,390 --> 00:25:29,360
today's investments in education

647
00:25:32,789 --> 00:25:30,400
science

648
00:25:35,269 --> 00:25:32,799
innovation and space technology will

649
00:25:38,149 --> 00:25:35,279
maintain nasa's position on the cutting

650
00:25:40,549 --> 00:25:38,159
edge while stimulating our economy and

651
00:25:43,350 --> 00:25:40,559
global competitiveness and inspiring

652
00:25:45,510 --> 00:25:43,360
future generations that concept of

653
00:25:47,830 --> 00:25:45,520
transformative work to give future

654
00:25:50,870 --> 00:25:47,840
generations more capability than we have

655
00:25:52,070 --> 00:25:50,880
today is at the core of our work right

656
00:25:54,070 --> 00:25:52,080
now

657
00:25:56,310 --> 00:25:54,080
nasa is at the heart of a national

658
00:25:57,350 --> 00:25:56,320
strategy to invest in research and

659
00:25:59,350 --> 00:25:57,360
development

660
00:26:01,909 --> 00:25:59,360
and take these concepts from the drawing

661
00:26:03,669 --> 00:26:01,919
board to the launch pad

662
00:26:07,669 --> 00:26:03,679
we can't

663
00:26:11,430 --> 00:26:07,679

we need your help

664
00:26:13,190 --> 00:26:11,440
your ideas your energy and your passion

665
00:26:14,310 --> 00:26:13,200
what you're doing here today is very

666
00:26:16,070 --> 00:26:14,320
important

667
00:26:17,110 --> 00:26:16,080
and i look forward to hearing more from

668
00:26:21,590 --> 00:26:17,120
you

669
00:26:23,350 --> 00:26:21,600
and the entire aerospace field as we

670
00:26:25,590 --> 00:26:23,360
move

671
00:26:27,909 --> 00:26:25,600
forward into a bright future of science

672
00:26:29,590 --> 00:26:27,919
aeronautics and exploration

673
00:26:31,269 --> 00:26:29,600
our future is bright

674
00:26:32,390 --> 00:26:31,279
and we're ready for the challenges of

675
00:26:35,029 --> 00:26:32,400
tomorrow

676
00:26:36,789 --> 00:26:35,039
we hope that you will join us on this

677
00:26:38,070 --> 00:26:36,799
journey thank you all very much for

678
00:26:53,269 --> 00:26:38,080
coming today and thanks for letting me

679
00:26:56,870 --> 00:26:55,110
uh thank you dr o'shea and thank you

680
00:26:59,029 --> 00:26:56,880
administrator bolden

681
00:27:01,430 --> 00:26:59,039
uh as dr o'shea and charlie both

682
00:27:03,269 --> 00:27:01,440
mentioned we have a really bright future

683
00:27:05,029 --> 00:27:03,279
ahead of us at nasa

684
00:27:06,789 --> 00:27:05,039
and it's very exciting to be part of

685
00:27:09,029 --> 00:27:06,799
that future and it's great to have all

686
00:27:11,590 --> 00:27:09,039
of you participating in that future

687
00:27:13,669 --> 00:27:11,600
we're very eager to have you engaged in

688
00:27:15,430 --> 00:27:13,679

helping us map out the future for nasa

689
00:27:17,990 --> 00:27:15,440
and the nation

690
00:27:20,630 --> 00:27:18,000
our next panel is going to be made up of

691
00:27:22,870 --> 00:27:20,640
some of our top nasa leadership

692
00:27:24,549 --> 00:27:22,880
our leaders are going to talk about the

693
00:27:26,950 --> 00:27:24,559
future of nasa

694
00:27:28,470 --> 00:27:26,960
their views on what the future may hold

695
00:27:30,710 --> 00:27:28,480
and then we're going to open it up for

696
00:27:33,269 --> 00:27:30,720
questions from those of you who are here

697
00:27:35,669 --> 00:27:33,279
in the audience and also from people who

698
00:27:38,870 --> 00:27:35,679
are joining us via the world wide web

699
00:27:40,389 --> 00:27:38,880
watching on www.nasa.gov

700
00:27:42,870 --> 00:27:40,399
ntv

701
00:27:45,750 --> 00:27:42,880
and participating with us through the

702
00:27:47,190 --> 00:27:45,760
social media of twitter

703
00:27:48,870 --> 00:27:47,200
if you're interested in asking a

704
00:27:50,230 --> 00:27:48,880
question of our panelists once they're

705
00:27:52,389 --> 00:27:50,240
done speaking

706
00:27:55,269 --> 00:27:52,399
we'll be taking questions from twitter

707
00:27:56,310 --> 00:27:55,279
via the at nasa underscore technology

708
00:27:59,110 --> 00:27:56,320
account

709
00:28:00,830 --> 00:27:59,120
and through the conversation hashtag of

710
00:28:02,549 --> 00:28:00,840
pound nasa

711
00:28:04,630 --> 00:28:02,559
future

712
00:28:06,230 --> 00:28:04,640
with that it's my honor and privilege to

713
00:28:07,430 --> 00:28:06,240

introduce our first panel of nasa

714
00:28:10,549 --> 00:28:07,440
leaders

715
00:28:12,310 --> 00:28:10,559
we have dr walid abdellati nasa's chief

716
00:28:13,990 --> 00:28:12,320
scientist from nasa headquarters in

717
00:28:17,269 --> 00:28:14,000
washington

718
00:28:19,909 --> 00:28:17,279
dr laurie leschen who is nasa's deputy

719
00:28:22,149 --> 00:28:19,919
associate administrator for the space

720
00:28:23,590 --> 00:28:22,159
exploration systems mission direct

721
00:28:26,230 --> 00:28:23,600
directorate

722
00:28:27,990 --> 00:28:26,240
uh dr bobby braun our chief science

723
00:28:30,470 --> 00:28:28,000
chief technologist

724
00:28:32,710 --> 00:28:30,480
and leland melvin a nasa astronaut who

725
00:28:34,230 --> 00:28:32,720
is also our associate administrator for

726
00:28:35,750 --> 00:28:34,240
the office of education at nasa

727
00:28:37,830 --> 00:28:35,760
headquarters

728
00:28:39,110 --> 00:28:37,840
and we'll start our discussions today

729
00:28:41,909 --> 00:28:39,120
with walid

730
00:28:46,149 --> 00:28:41,919
all right thank you david um

731
00:28:48,950 --> 00:28:46,159
i guess i i want to start by saying

732
00:28:51,110 --> 00:28:48,960
a simple fact and that is this that

733
00:28:53,350 --> 00:28:51,120
our greatest achievements

734
00:28:55,190 --> 00:28:53,360
the greatest things we do as individuals

735
00:28:57,669 --> 00:28:55,200
or as a society

736
00:29:00,389 --> 00:28:57,679
really begin with dreams

737
00:29:02,710 --> 00:29:00,399
some thought of something

738
00:29:05,510 --> 00:29:02,720

we may view as unachievable but worth

739
00:29:08,630 --> 00:29:05,520
thinking about worth dreaming about and

740
00:29:11,029 --> 00:29:08,640
as our capabilities evolve as we become

741
00:29:12,630 --> 00:29:11,039
smarter as technologies

742
00:29:14,070 --> 00:29:12,640
are brought forth

743
00:29:16,870 --> 00:29:14,080
these dreams

744
00:29:18,549 --> 00:29:16,880
evolve into aspirations

745
00:29:20,950 --> 00:29:18,559
where all of a sudden or not all of a

746
00:29:23,830 --> 00:29:20,960
sudden but in time it's not so crazy to

747
00:29:25,669 --> 00:29:23,840
think about going to the moon or going

748
00:29:27,830 --> 00:29:25,679
to mars or

749
00:29:30,870 --> 00:29:27,840
looking at distant stars and the edges

750
00:29:35,669 --> 00:29:32,950
so they become aspirations something

751
00:29:39,110 --> 00:29:35,679
maybe to someday shoot for

752
00:29:40,710 --> 00:29:39,120
and as we continue to become smarter or

753
00:29:43,029 --> 00:29:40,720
develop more capabilities and

754
00:29:46,070 --> 00:29:43,039
technologies the next step in this

755
00:29:48,549 --> 00:29:46,080
continuum is pursuits these aspirations

756
00:29:50,870 --> 00:29:48,559
become pursuits things we can

757
00:29:53,830 --> 00:29:50,880
actually go after set our sights on a

758
00:29:56,389 --> 00:29:53,840
goal focus our efforts and work toward

759
00:29:57,909 --> 00:29:56,399
the realization of those goals and then

760
00:30:00,950 --> 00:29:57,919
finally

761
00:30:02,230 --> 00:30:00,960
the last step in that sequence is

762
00:30:05,269 --> 00:30:02,240
achievement

763
00:30:06,710 --> 00:30:05,279

so we go from dreams to aspiration

764
00:30:09,590 --> 00:30:06,720
to pursuit

765
00:30:11,590 --> 00:30:09,600
to achievement and i believe that

766
00:30:14,389 --> 00:30:11,600
sequence has been borne out time and

767
00:30:16,470 --> 00:30:14,399
time again at nasa in the past

768
00:30:19,269 --> 00:30:16,480
is being born out in the present and

769
00:30:21,110 --> 00:30:19,279
will be borne out in the future

770
00:30:23,190 --> 00:30:21,120
one great thing about achievements is

771
00:30:26,470 --> 00:30:23,200
they lead to new dreams so this cycle

772
00:30:27,350 --> 00:30:26,480
can just just keep going uh and really

773
00:30:29,669 --> 00:30:27,360
uh

774
00:30:31,350 --> 00:30:29,679
i'd say the sky's the limit but the

775
00:30:33,110 --> 00:30:31,360
universe is the limit and i don't even

776
00:30:34,830 --> 00:30:33,120
think that's the limit we'll we'll learn

777
00:30:37,909 --> 00:30:34,840
as we go

778
00:30:39,669 --> 00:30:37,919
um so nasa has a history of producing

779
00:30:42,789 --> 00:30:39,679
incredible achievements and these aren't

780
00:30:44,789 --> 00:30:42,799
just human achievements uh

781
00:30:46,149 --> 00:30:44,799
in exploration and taking people to

782
00:30:47,110 --> 00:30:46,159
places that

783
00:30:48,950 --> 00:30:47,120
for

784
00:30:50,630 --> 00:30:48,960
most of humankind was thought to be

785
00:30:53,430 --> 00:30:50,640
impossible these are scientific

786
00:30:56,310 --> 00:30:53,440
achievements discovery about our

787
00:30:58,470 --> 00:30:56,320
surroundings about the earth about the

788
00:31:01,669 --> 00:30:58,480

universe

789
00:31:04,389 --> 00:31:01,679
the administrator listed a number of

790
00:31:06,149 --> 00:31:04,399
achievements in either

791
00:31:07,830 --> 00:31:06,159
the last couple of months or in the

792
00:31:09,269 --> 00:31:07,840
coming few months but the last six

793
00:31:11,669 --> 00:31:09,279
months of this year

794
00:31:13,750 --> 00:31:11,679
really is incredible with two

795
00:31:15,590 --> 00:31:13,760
missions to study the earth

796
00:31:17,830 --> 00:31:15,600
a mission to study the interior of the

797
00:31:20,149 --> 00:31:17,840
moon we're on our way to jupiter now

798
00:31:21,029 --> 00:31:20,159
we're going to be exploring mars in ways

799
00:31:23,190 --> 00:31:21,039
that

800
00:31:24,310 --> 00:31:23,200
we haven't been able to

801
00:31:27,350 --> 00:31:24,320
to date

802
00:31:28,950 --> 00:31:27,360
and we're in orbit around the asteroid

803
00:31:30,870 --> 00:31:28,960
vesta

804
00:31:33,190 --> 00:31:30,880
learning about the origins of the solar

805
00:31:35,830 --> 00:31:33,200
system we recently entered orbit around

806
00:31:38,870 --> 00:31:35,840
mercury in february we're launching an

807
00:31:40,470 --> 00:31:38,880
x-ray telescope to look out further than

808
00:31:42,149 --> 00:31:40,480
has been looked before with x-ray

809
00:31:44,070 --> 00:31:42,159
astronomy these

810
00:31:46,470 --> 00:31:44,080
this is over the course of maybe an

811
00:31:48,870 --> 00:31:46,480
eight or nine month period i would say

812
00:31:51,830 --> 00:31:48,880
this is a period of great achievement

813
00:31:55,029 --> 00:31:51,840

with many to still lie ahead and when i

814
00:31:58,830 --> 00:31:55,039
think about nasa science

815
00:32:02,230 --> 00:32:00,710
inspirational

816
00:32:04,549 --> 00:32:02,240
and service

817
00:32:07,269 --> 00:32:04,559
i think what nasa does

818
00:32:09,590 --> 00:32:07,279
is inspirational i think it speaks to

819
00:32:12,070 --> 00:32:09,600
the very core of who we are

820
00:32:13,990 --> 00:32:12,080
as human beings one thing that has been

821
00:32:15,830 --> 00:32:14,000
constant throughout time as the desire

822
00:32:17,430 --> 00:32:15,840
to explore

823
00:32:19,029 --> 00:32:17,440
the desire to understand our

824
00:32:22,230 --> 00:32:19,039
surroundings

825
00:32:24,710 --> 00:32:22,240
whether it be you know years ago the

826
00:32:26,149 --> 00:32:24,720
the forest we live nearby and how you

827
00:32:28,389 --> 00:32:26,159
know our

828
00:32:31,190 --> 00:32:28,399
residence or domicile fits into that

829
00:32:33,029 --> 00:32:31,200
landscape or more recently the universe

830
00:32:34,950 --> 00:32:33,039
we live in and

831
00:32:37,029 --> 00:32:34,960
our place in it

832
00:32:39,750 --> 00:32:37,039
um and if you just think about it

833
00:32:42,950 --> 00:32:39,760
getting back to dreams and pursuits and

834
00:32:45,029 --> 00:32:42,960
achievements um you know we're currently

835
00:32:47,190 --> 00:32:45,039
looking very close to the beginning of

836
00:32:49,430 --> 00:32:47,200
time as we understand it out at the

837
00:32:50,710 --> 00:32:49,440
furthest reaches the edges of the

838
00:32:52,950 --> 00:32:50,720

universe

839
00:32:54,870 --> 00:32:52,960
we've discovered methane lakes and

840
00:32:57,750 --> 00:32:54,880
rivers on the surface of titan we've

841
00:33:02,950 --> 00:32:57,760
discovered uh at least great strong

842
00:33:07,990 --> 00:33:05,509
we're understanding our own planet how

843
00:33:10,630 --> 00:33:08,000
it functions how it's changing and what

844
00:33:12,870 --> 00:33:10,640
those changes mean for life on earth and

845
00:33:15,590 --> 00:33:12,880
that gets to the second element i said

846
00:33:16,710 --> 00:33:15,600
inspirational the second is service

847
00:33:19,350 --> 00:33:16,720
um

848
00:33:20,389 --> 00:33:19,360
the science we do helps us understand

849
00:33:22,950 --> 00:33:20,399
not just

850
00:33:26,789 --> 00:33:22,960
the stuff we dream about but where we

851
00:33:30,470 --> 00:33:26,799
live and the second aspect of the human

852
00:33:33,430 --> 00:33:30,480
spirit besides exploration is the desire

853
00:33:35,909 --> 00:33:33,440
the need the hunger to survive

854
00:33:38,149 --> 00:33:35,919
and not to survive but thrive in our own

855
00:33:39,669 --> 00:33:38,159
environment and surviving and or

856
00:33:41,509 --> 00:33:39,679
thriving depends if you're a pessimist

857
00:33:43,750 --> 00:33:41,519
or an optimist

858
00:33:45,590 --> 00:33:43,760
i'll say thriving in our changing

859
00:33:48,470 --> 00:33:45,600
environment requires information

860
00:33:51,269 --> 00:33:48,480
requires the perspective and scale and

861
00:33:53,909 --> 00:33:51,279
context of observation that comes from

862
00:33:55,830 --> 00:33:53,919
looking from space you know i'm sure

863
00:33:58,870 --> 00:33:55,840

nearly all of you have seen that

864
00:33:59,830 --> 00:33:58,880
earthrise image of the the earth sort of

865
00:34:00,630 --> 00:33:59,840
hanging

866
00:34:01,909 --> 00:34:00,640
well

867
00:34:04,950 --> 00:34:01,919
floating

868
00:34:06,950 --> 00:34:04,960
being uh

869
00:34:09,750 --> 00:34:06,960
in the um

870
00:34:12,710 --> 00:34:09,760
darkness and silence of space and and

871
00:34:15,430 --> 00:34:12,720
that picture really changed how we view

872
00:34:17,430 --> 00:34:15,440
our planet as did the pale blue dot

873
00:34:19,190 --> 00:34:17,440
image uh the earth from the edge of the

874
00:34:21,750 --> 00:34:19,200
solar system so that

875
00:34:25,589 --> 00:34:21,760
perspective understanding how the earth

876
00:34:27,750 --> 00:34:25,599
works the interacting components

877
00:34:30,389 --> 00:34:27,760
will not only allow us to survive in the

878
00:34:33,190 --> 00:34:30,399
face of the changes

879
00:34:35,669 --> 00:34:33,200
that our planet faces but really thrive

880
00:34:38,149 --> 00:34:35,679
really make the most of the evolution of

881
00:34:42,149 --> 00:34:38,159
our planet so in that sense science at

882
00:34:43,990 --> 00:34:42,159
nasa both inspires and serves humankind

883
00:34:46,629 --> 00:34:44,000
and

884
00:34:48,389 --> 00:34:46,639
what pursuit could be greater frankly

885
00:34:51,909 --> 00:34:48,399
and i think it's fitting that we're here

886
00:34:54,310 --> 00:34:51,919
at a university because i often compare

887
00:34:55,829 --> 00:34:54,320
investing in nasa science and

888
00:34:56,710 --> 00:34:55,839

exploration

889
00:34:59,030 --> 00:34:56,720
to

890
00:35:02,230 --> 00:34:59,040
investing in college you know we're in

891
00:35:03,910 --> 00:35:02,240
difficult economic times but any parent

892
00:35:05,990 --> 00:35:03,920
that has scraped

893
00:35:09,589 --> 00:35:06,000
and saved money

894
00:35:11,910 --> 00:35:09,599
despite hard times to send their child

895
00:35:14,630 --> 00:35:11,920
or children to school

896
00:35:17,349 --> 00:35:14,640
for a brighter better future

897
00:35:19,430 --> 00:35:17,359
understands what we do at nasa for the

898
00:35:21,750 --> 00:35:19,440
nation and for the world so with that

899
00:35:28,710 --> 00:35:21,760
i'll pass it over to lori leshan thank

900
00:35:28,720 --> 00:35:33,349
thanks waleed good morning everybody

901
00:35:38,390 --> 00:35:35,190
thank you gentlemen

902
00:35:40,630 --> 00:35:38,400
i am here representing human exploration

903
00:35:42,470 --> 00:35:40,640
and i am here to report

904
00:35:45,990 --> 00:35:42,480
that reports of our death have been

905
00:35:50,069 --> 00:35:47,190
in fact

906
00:35:52,870 --> 00:35:50,079
i'm here to declare that the next phase

907
00:35:56,310 --> 00:35:52,880
of human exploration is upon us

908
00:35:58,550 --> 00:35:56,320
and we at nasa are here to make that

909
00:36:00,310 --> 00:35:58,560
next phase a reality and i'd just like

910
00:36:02,870 --> 00:36:00,320
to talk with you today a little bit

911
00:36:05,990 --> 00:36:02,880
about where we are going in the future

912
00:36:08,470 --> 00:36:06,000
with human exploration as we go

913
00:36:09,670 --> 00:36:08,480

we will be building on extraordinary

914
00:36:11,910 --> 00:36:09,680
legacies

915
00:36:14,790 --> 00:36:11,920
the legacy of apollo perhaps the

916
00:36:17,190 --> 00:36:14,800
greatest achievement of the last century

917
00:36:19,190 --> 00:36:17,200
of humankind

918
00:36:21,990 --> 00:36:19,200
the legacy of the space shuttle program

919
00:36:23,589 --> 00:36:22,000
which we successfully brought to a close

920
00:36:25,589 --> 00:36:23,599
only weeks ago

921
00:36:27,510 --> 00:36:25,599
with an extraordinary mission final

922
00:36:29,670 --> 00:36:27,520
mission of the space shuttle to the

923
00:36:32,390 --> 00:36:29,680
international space station how many

924
00:36:34,069 --> 00:36:32,400
people watched the launch anybody go can

925
00:36:35,430 --> 00:36:34,079
we go in person

926
00:36:37,829 --> 00:36:35,440
right on

927
00:36:40,550 --> 00:36:37,839
i was very privileged to uh to be there

928
00:36:41,910 --> 00:36:40,560
and it was a it was a special a special

929
00:36:44,870 --> 00:36:41,920
time

930
00:36:49,589 --> 00:36:44,880
and we owe extraordinary

931
00:36:51,510 --> 00:36:49,599
kudos and and that team deserves

932
00:36:53,030 --> 00:36:51,520
the kudos all the kudos we can give them

933
00:36:54,870 --> 00:36:53,040
and

934
00:36:56,710 --> 00:36:54,880
that program deserves all the pride that

935
00:36:59,109 --> 00:36:56,720
it takes and its achievements it was it

936
00:37:01,190 --> 00:36:59,119
has been extraordinary but we are

937
00:37:02,630 --> 00:37:01,200
looking towards the future as charlie

938
00:37:05,190 --> 00:37:02,640

said

939
00:37:08,310 --> 00:37:05,200
it was time to retire the shuttle and

940
00:37:09,910 --> 00:37:08,320
move forward we will be going farther we

941
00:37:12,310 --> 00:37:09,920
will be going beyond where the shuttle

942
00:37:14,630 --> 00:37:12,320
could go beyond leo beyond low earth

943
00:37:16,230 --> 00:37:14,640
orbit beyond the moon beyond where

944
00:37:19,190 --> 00:37:16,240
apollo went

945
00:37:23,270 --> 00:37:19,200
we'll be going beyond to places like

946
00:37:27,109 --> 00:37:23,280
asteroids and mars and in my hopes and

947
00:37:28,310 --> 00:37:27,119
aspirations uh even beyond that with uh

948
00:37:30,230 --> 00:37:28,320
humans

949
00:37:31,670 --> 00:37:30,240
why will we be doing this

950
00:37:33,270 --> 00:37:31,680
well

951
00:37:36,390 --> 00:37:33,280
one there's so much to know about these

952
00:37:38,390 --> 00:37:36,400
places asteroids can teach us

953
00:37:41,109 --> 00:37:38,400
incredible things about the birth of our

954
00:37:43,109 --> 00:37:41,119
solar system they are the remnants of

955
00:37:45,190 --> 00:37:43,119
the cloud of material from which the sun

956
00:37:47,349 --> 00:37:45,200
and planets form there they are the

957
00:37:49,750 --> 00:37:47,359
oldest rocks in the solar system and we

958
00:37:52,630 --> 00:37:49,760
can use them to really unravel the

959
00:37:55,349 --> 00:37:52,640
mystery of how solar systems form and

960
00:37:57,349 --> 00:37:55,359
how our solar system formed and even how

961
00:37:59,510 --> 00:37:57,359
things like the organic materials that

962
00:38:01,030 --> 00:37:59,520
we're all made of were delivered to the

963
00:38:03,030 --> 00:38:01,040

forming planets

964
00:38:06,310 --> 00:38:03,040
in addition of course asteroids can have

965
00:38:07,750 --> 00:38:06,320
a counter effect on life on our planet

966
00:38:10,470 --> 00:38:07,760
as we know

967
00:38:11,829 --> 00:38:10,480
any anyone who loves dinosaurs knows

968
00:38:14,069 --> 00:38:11,839
that

969
00:38:15,270 --> 00:38:14,079
these objects occasionally intersect the

970
00:38:16,950 --> 00:38:15,280
orbit of the earth when the earth is

971
00:38:17,670 --> 00:38:16,960
sitting there in that part of its orbit

972
00:38:19,109 --> 00:38:17,680
so

973
00:38:21,750 --> 00:38:19,119
they can cause

974
00:38:23,750 --> 00:38:21,760
major changes in life on our planet and

975
00:38:25,109 --> 00:38:23,760
have done so in fact one might argue and

976
00:38:26,950 --> 00:38:25,119
a lot of people have that we are here

977
00:38:29,030 --> 00:38:26,960
today as a result of an asteroid impact

978
00:38:30,790 --> 00:38:29,040
so we'd like to not go the way of the

979
00:38:32,390 --> 00:38:30,800
dinosaurs but understand how we might

980
00:38:34,790 --> 00:38:32,400
prevent that from happening to us in the

981
00:38:35,910 --> 00:38:34,800
future so asteroids are very interesting

982
00:38:37,910 --> 00:38:35,920
objects scientifically they're

983
00:38:39,750 --> 00:38:37,920
interesting from a hazard perspective

984
00:38:42,150 --> 00:38:39,760
and who knows maybe we can help save the

985
00:38:44,230 --> 00:38:42,160
world by going and exploring them

986
00:38:46,470 --> 00:38:44,240
and then of course mars is one of our

987
00:38:48,550 --> 00:38:46,480
our future destinations for humans is an

988
00:38:50,710 --> 00:38:48,560

extraordinarily compelling place with a

989
00:38:52,230 --> 00:38:50,720
long history of holding a special place

990
00:38:55,030 --> 00:38:52,240
in humanity's

991
00:38:57,670 --> 00:38:55,040
dreams for for future exploration i

992
00:38:58,790 --> 00:38:57,680
believe it's it's our best chance to

993
00:39:00,230 --> 00:38:58,800
discover

994
00:39:02,069 --> 00:39:00,240
life on another world you all heard

995
00:39:04,470 --> 00:39:02,079
about our great water discovery last

996
00:39:06,950 --> 00:39:04,480
week potential for flowing water even

997
00:39:08,390 --> 00:39:06,960
today on mars

998
00:39:11,430 --> 00:39:08,400
it's my opinion that we're going to need

999
00:39:13,430 --> 00:39:11,440
human explorers to to actually go and

1000
00:39:15,430 --> 00:39:13,440
definitively answer the question about

1001
00:39:17,910 --> 00:39:15,440
whether or not there has been or is

1002
00:39:20,069 --> 00:39:17,920
currently life on mars

1003
00:39:23,270 --> 00:39:20,079
so that's an extraordinary scientific

1004
00:39:25,109 --> 00:39:23,280
reason to go and and in addition um

1005
00:39:26,870 --> 00:39:25,119
long periods of stay for humans away

1006
00:39:31,670 --> 00:39:26,880
from earth mars seems like a quite a

1007
00:39:36,150 --> 00:39:33,190
so we do it because there's so much to

1008
00:39:38,069 --> 00:39:36,160
know we also do it because pushing the

1009
00:39:40,950 --> 00:39:38,079
boundaries of what's possible is part of

1010
00:39:42,950 --> 00:39:40,960
our dna as human beings and it's part of

1011
00:39:45,270 --> 00:39:42,960
our the dna of our country i would say

1012
00:39:46,710 --> 00:39:45,280
it's part of of american dna so we're

1013
00:39:48,790 --> 00:39:46,720

going to continue to push beyond where

1014
00:39:51,270 --> 00:39:48,800
we've been before and also because

1015
00:39:53,109 --> 00:39:51,280
undertaking really audacious challenges

1016
00:39:55,270 --> 00:39:53,119
like saying we're going to send humans

1017
00:39:58,150 --> 00:39:55,280
to mars

1018
00:40:00,710 --> 00:39:58,160
drives our nation to strive and invent

1019
00:40:02,470 --> 00:40:00,720
and ultimately prosper i truly believe

1020
00:40:04,150 --> 00:40:02,480
that we must take on audacious

1021
00:40:08,069 --> 00:40:04,160
challenges as a country in order to

1022
00:40:10,150 --> 00:40:08,079
continue to drive forward and prosper

1023
00:40:12,470 --> 00:40:10,160
so how are we going to do this how are

1024
00:40:15,990 --> 00:40:12,480
we going to create this this future of

1025
00:40:17,510 --> 00:40:16,000
for human space flight when um

1026
00:40:19,349 --> 00:40:17,520
so many people are saying there is no

1027
00:40:21,990 --> 00:40:19,359
program and i'm here to tell you there

1028
00:40:23,829 --> 00:40:22,000
is a great program we actually have all

1029
00:40:26,230 --> 00:40:23,839
the pieces in place in the programs we

1030
00:40:28,470 --> 00:40:26,240
are putting together to undertake the

1031
00:40:30,390 --> 00:40:28,480
next phase of human exploration we have

1032
00:40:31,829 --> 00:40:30,400
those pieces in place thanks to congress

1033
00:40:33,270 --> 00:40:31,839
who passed our authorization act last

1034
00:40:34,710 --> 00:40:33,280
year and to the administration who

1035
00:40:35,670 --> 00:40:34,720
supported that

1036
00:40:37,430 --> 00:40:35,680
um

1037
00:40:39,589 --> 00:40:37,440
those what are those elements so there's

1038
00:40:41,750 --> 00:40:39,599

basically three pieces to our future

1039
00:40:43,990 --> 00:40:41,760
program of human exploration they start

1040
00:40:45,910 --> 00:40:44,000
close to home in low earth orbit with

1041
00:40:48,470 --> 00:40:45,920
the international space station and it's

1042
00:40:50,470 --> 00:40:48,480
extension till at least 2020 it is our

1043
00:40:52,550 --> 00:40:50,480
laboratory it's our test bed and it's

1044
00:40:54,470 --> 00:40:52,560
our foothold in space for humans we've

1045
00:40:56,790 --> 00:40:54,480
got astronauts there now it's been

1046
00:40:58,630 --> 00:40:56,800
occupied continuously for over 11 years

1047
00:41:01,349 --> 00:40:58,640
and we intend to keep that record going

1048
00:41:03,670 --> 00:41:01,359
for another decade at least

1049
00:41:05,910 --> 00:41:03,680
we will use it in ever-expanding ways

1050
00:41:08,309 --> 00:41:05,920
we'll supply it with cargo and

1051
00:41:09,990 --> 00:41:08,319
ultimately crew using innovative

1052
00:41:13,829 --> 00:41:10,000
approaches partnering with the private

1053
00:41:15,750 --> 00:41:13,839
sector in new ways for nasa to create

1054
00:41:17,910 --> 00:41:15,760
new industries and new commercial

1055
00:41:19,750 --> 00:41:17,920
opportunities so not in the the

1056
00:41:21,270 --> 00:41:19,760
traditional nasa program sense which we

1057
00:41:23,750 --> 00:41:21,280
can talk about more in the q a if you

1058
00:41:25,030 --> 00:41:23,760
all want to about but but yet in new

1059
00:41:26,870 --> 00:41:25,040
ways with our commercial partners

1060
00:41:28,470 --> 00:41:26,880
developing a service that then nasa can

1061
00:41:30,790 --> 00:41:28,480
purchase and then that service is

1062
00:41:33,349 --> 00:41:30,800
available to more than just nasa it's a

1063
00:41:35,190 --> 00:41:33,359

great opportunity to expand space

1064
00:41:36,550 --> 00:41:35,200
exploration in new ways so we start in

1065
00:41:40,470 --> 00:41:36,560
low earth orbit

1066
00:41:42,069 --> 00:41:40,480
so the great thing about doing this

1067
00:41:43,270 --> 00:41:42,079
innovative partnership for low earth

1068
00:41:45,109 --> 00:41:43,280
orbit is that it should free up

1069
00:41:46,950 --> 00:41:45,119
resources for nasa to focus on beyond

1070
00:41:48,710 --> 00:41:46,960
low earth orbit nasa should be the ones

1071
00:41:50,550 --> 00:41:48,720
focusing on that frontier on those

1072
00:41:52,230 --> 00:41:50,560
things that have never been done before

1073
00:41:53,829 --> 00:41:52,240
we know we need a capsule and a big

1074
00:41:55,349 --> 00:41:53,839
rocket to get out beyond low earth orbit

1075
00:41:57,349 --> 00:41:55,359
so we're starting on those right away

1076
00:41:59,349 --> 00:41:57,359
and those are in formulation right now

1077
00:42:00,829 --> 00:41:59,359
and actually

1078
00:42:03,990 --> 00:42:00,839
starting to be

1079
00:42:06,470 --> 00:42:04,000
constructed and third we need

1080
00:42:08,390 --> 00:42:06,480
research and we need to develop

1081
00:42:10,230 --> 00:42:08,400
technologies and new capabilities in

1082
00:42:12,150 --> 00:42:10,240
order to go beyond low earth orbit in

1083
00:42:14,230 --> 00:42:12,160
addition to the rocket on the capsule

1084
00:42:15,829 --> 00:42:14,240
and we're working on those as well so

1085
00:42:17,910 --> 00:42:15,839
there are hard questions we need to

1086
00:42:19,670 --> 00:42:17,920
answer about human survivability on long

1087
00:42:22,150 --> 00:42:19,680
space trips beyond

1088
00:42:23,990 --> 00:42:22,160

earth there are new habitats that need

1089
00:42:26,550 --> 00:42:24,000
to be invented uh new kinds of

1090
00:42:28,069 --> 00:42:26,560
propulsion for in space travel

1091
00:42:32,870 --> 00:42:28,079
new kinds of

1092
00:42:35,190 --> 00:42:32,880
craft to maybe fly asteroids around or

1093
00:42:36,630 --> 00:42:35,200
fly astronauts around the asteroids so

1094
00:42:38,150 --> 00:42:36,640
we actually had a question on twitter

1095
00:42:39,589 --> 00:42:38,160
come through already about the kinds of

1096
00:42:41,270 --> 00:42:39,599
technology that that we're going to be

1097
00:42:43,910 --> 00:42:41,280
working on those are some of the new

1098
00:42:45,270 --> 00:42:43,920
kinds of systems we need as we go beyond

1099
00:42:47,030 --> 00:42:45,280
low earth orbit so the rocket and the

1100
00:42:48,710 --> 00:42:47,040
capsule that we're doing are absolutely

1101
00:42:50,390 --> 00:42:48,720
necessary they're absolutely not

1102
00:42:52,069 --> 00:42:50,400
sufficient for us to get there we need

1103
00:42:53,510 --> 00:42:52,079
to invent a lot of other things as well

1104
00:42:55,910 --> 00:42:53,520
and i'm sure bobby will say more about

1105
00:42:57,910 --> 00:42:55,920
this but we have all those elements in

1106
00:42:59,349 --> 00:42:57,920
our programs now we have all those

1107
00:43:01,430 --> 00:42:59,359
different pieces the low earth orbit

1108
00:43:03,349 --> 00:43:01,440
piece with iss the rocket and the

1109
00:43:05,030 --> 00:43:03,359
capsule and the research and technology

1110
00:43:07,030 --> 00:43:05,040
that we need to go forward we need to

1111
00:43:08,790 --> 00:43:07,040
make sure we follow through on inventing

1112
00:43:11,190 --> 00:43:08,800
all of those things and on driving

1113
00:43:13,190 --> 00:43:11,200

through all those things to make our

1114
00:43:14,630 --> 00:43:13,200
exploration dreams a reality but i want

1115
00:43:16,710 --> 00:43:14,640
to close by saying

1116
00:43:18,950 --> 00:43:16,720
having cool destinations and having the

1117
00:43:21,430 --> 00:43:18,960
various pieces in our program isn't

1118
00:43:24,390 --> 00:43:21,440
enough to make this aspiration become

1119
00:43:26,230 --> 00:43:24,400
reality making this endeavor a reality

1120
00:43:28,150 --> 00:43:26,240
is going to require inventing something

1121
00:43:30,390 --> 00:43:28,160
that's actually more challenging than

1122
00:43:33,190 --> 00:43:30,400
inventing new technologies or new

1123
00:43:36,069 --> 00:43:33,200
systems i think it's going to require

1124
00:43:37,910 --> 00:43:36,079
inventing a new way of operating for

1125
00:43:39,109 --> 00:43:37,920
nasa and for our

1126
00:43:40,710 --> 00:43:39,119
our

1127
00:43:43,670 --> 00:43:40,720
community it's going to require

1128
00:43:46,550 --> 00:43:43,680
inventing new ways of collaborating

1129
00:43:48,150 --> 00:43:46,560
new ways of exploring

1130
00:43:50,390 --> 00:43:48,160
we need to collaborate

1131
00:43:52,470 --> 00:43:50,400
across different parts of nasa science

1132
00:43:53,910 --> 00:43:52,480
and exploration working together we need

1133
00:43:55,589 --> 00:43:53,920
to collaborate in new ways with the

1134
00:43:58,550 --> 00:43:55,599
private sector like we're trying to do

1135
00:44:00,870 --> 00:43:58,560
with our commercial programs but even in

1136
00:44:02,710 --> 00:44:00,880
our nasa programs we need to work

1137
00:44:04,470 --> 00:44:02,720
differently with the with our private

1138
00:44:06,470 --> 00:44:04,480

sector colleagues we need to collaborate

1139
00:44:07,670 --> 00:44:06,480
with other nations in new and expanded

1140
00:44:09,510 --> 00:44:07,680
ways we need to collaborate with

1141
00:44:11,030 --> 00:44:09,520
universities

1142
00:44:12,550 --> 00:44:11,040
to make sure that we're getting the best

1143
00:44:14,950 --> 00:44:12,560
and the brightest students and the best

1144
00:44:16,150 --> 00:44:14,960
and the best research possible

1145
00:44:17,829 --> 00:44:16,160
and we probably need to collaborate with

1146
00:44:20,150 --> 00:44:17,839
the public in the ways that we haven't

1147
00:44:23,190 --> 00:44:20,160
collaborated with them before we need to

1148
00:44:25,190 --> 00:44:23,200
create a worldwide exploration movement

1149
00:44:27,430 --> 00:44:25,200
in order to make this aspiration a

1150
00:44:28,309 --> 00:44:27,440
reality so my request of all of you

1151
00:44:29,990 --> 00:44:28,319
today

1152
00:44:30,950 --> 00:44:30,000
is to think about how you can help us do

1153
00:44:35,270 --> 00:44:30,960
that

1154
00:44:37,430 --> 00:44:35,280
create this worldwide exploration

1155
00:44:39,670 --> 00:44:37,440
movement tell us

1156
00:44:41,430 --> 00:44:39,680
how to do that with you worry less about

1157
00:44:42,870 --> 00:44:41,440
who's going to build it or what the what

1158
00:44:44,309 --> 00:44:42,880
the rocket exactly is going to look like

1159
00:44:46,390 --> 00:44:44,319
and more about

1160
00:44:48,390 --> 00:44:46,400
how we create this coalition of human

1161
00:44:50,710 --> 00:44:48,400
beings who won't rest

1162
00:44:52,790 --> 00:44:50,720
until a person is walking on mars or

1163
00:44:54,710 --> 00:44:52,800

even going beyond that and let's just

1164
00:44:57,750 --> 00:44:54,720
think about that for a moment what is

1165
00:45:01,910 --> 00:44:57,760
that moment going to feel like as that

1166
00:45:04,550 --> 00:45:01,920
first astronaut sets foot on mars

1167
00:45:07,109 --> 00:45:04,560
as she shakes that red soil from her

1168
00:45:11,589 --> 00:45:09,750
i like that i hope you all will remember

1169
00:45:13,750 --> 00:45:11,599
this day that we all rededicate

1170
00:45:16,230 --> 00:45:13,760
ourselves to working together to enable

1171
00:45:21,109 --> 00:45:16,240
an amazing future for nasa

1172
00:45:23,270 --> 00:45:22,230
and now

1173
00:45:24,870 --> 00:45:23,280
i uh

1174
00:45:25,750 --> 00:45:24,880
i turn it over to my dear friend bobby

1175
00:45:26,630 --> 00:45:25,760
brown

1176
00:45:31,349 --> 00:45:26,640
thank you

1177
00:45:34,630 --> 00:45:31,359
remind me not to uh try to speak after

1178
00:45:39,510 --> 00:45:36,710
i just i want to start out by just

1179
00:45:41,190 --> 00:45:39,520
making a couple remarks

1180
00:45:43,829 --> 00:45:41,200
i guess the the best way for me to say

1181
00:45:45,109 --> 00:45:43,839
this is to say that

1182
00:45:47,510 --> 00:45:45,119
i love

1183
00:45:49,670 --> 00:45:47,520
being affiliated with nasa

1184
00:45:51,829 --> 00:45:49,680
i'm an engineer who

1185
00:45:53,910 --> 00:45:51,839
has dreamed of building things and

1186
00:45:56,069 --> 00:45:53,920
had the privilege of actually working on

1187
00:45:58,710 --> 00:45:56,079
some flight systems in my career who's

1188
00:46:01,270 --> 00:45:58,720

been transplanted here to washington

1189
00:46:04,550 --> 00:46:01,280
and i love being affiliated with nasa

1190
00:46:06,630 --> 00:46:04,560
and i've been thinking about why that is

1191
00:46:08,069 --> 00:46:06,640
and the reason i think is because nasa

1192
00:46:11,109 --> 00:46:08,079
to me

1193
00:46:12,950 --> 00:46:11,119
is a little microcosm of the best of our

1194
00:46:18,550 --> 00:46:12,960
nation

1195
00:46:19,910 --> 00:46:18,560
that's never satisfied with the status

1196
00:46:21,670 --> 00:46:19,920
quo

1197
00:46:24,309 --> 00:46:21,680
we're a nation that's always trying to

1198
00:46:26,150 --> 00:46:24,319
out innovate ourselves

1199
00:46:27,750 --> 00:46:26,160
uh to do better you know

1200
00:46:30,069 --> 00:46:27,760
we're never quite there right we can

1201
00:46:34,069 --> 00:46:30,079
always do it better in this country

1202
00:46:36,470 --> 00:46:34,079
and and sure there are fiscal challenges

1203
00:46:38,630 --> 00:46:36,480
today but this country still remains the

1204
00:46:40,710 --> 00:46:38,640
land of opportunity

1205
00:46:41,910 --> 00:46:40,720
and when i look at nasa those are the

1206
00:46:44,150 --> 00:46:41,920
exact same

1207
00:46:45,270 --> 00:46:44,160
characteristics that i see for our

1208
00:46:46,870 --> 00:46:45,280
future

1209
00:46:49,030 --> 00:46:46,880
uh and by the way those are the same

1210
00:46:50,790 --> 00:46:49,040
characteristics those that mentality

1211
00:46:51,990 --> 00:46:50,800
that approach that approach to

1212
00:46:53,270 --> 00:46:52,000
operations

1213
00:46:55,829 --> 00:46:53,280

is the same

1214
00:46:58,550 --> 00:46:55,839
uh characteristics required for success

1215
00:47:00,630 --> 00:46:58,560
in the 21st century in the in the global

1216
00:47:02,710 --> 00:47:00,640
technological marketplace that we find

1217
00:47:04,470 --> 00:47:02,720
ourselves in

1218
00:47:07,270 --> 00:47:04,480
we heard some about nasa's future

1219
00:47:09,349 --> 00:47:07,280
science missions some of nasa's future

1220
00:47:10,710 --> 00:47:09,359
human exploration missions

1221
00:47:14,710 --> 00:47:10,720
these missions

1222
00:47:17,430 --> 00:47:14,720
stature and so to me

1223
00:47:20,950 --> 00:47:17,440
uh one thing that i'm proud of is that

1224
00:47:23,109 --> 00:47:20,960
our country can dream big through nasa

1225
00:47:24,630 --> 00:47:23,119
now from a technology standpoint many of

1226
00:47:25,670 --> 00:47:24,640
the missions that we're accomplishing

1227
00:47:27,030 --> 00:47:25,680
today

1228
00:47:28,630 --> 00:47:27,040
are based

1229
00:47:30,470 --> 00:47:28,640
on engineering principles and on

1230
00:47:33,349 --> 00:47:30,480
engineering systems that were actually

1231
00:47:34,390 --> 00:47:33,359
first demonstrated in the 60s 70s and

1232
00:47:36,309 --> 00:47:34,400
80s

1233
00:47:38,069 --> 00:47:36,319
and so while we're doing great missions

1234
00:47:40,470 --> 00:47:38,079
today and while we will be doing even

1235
00:47:41,910 --> 00:47:40,480
bigger missions in the future

1236
00:47:43,670 --> 00:47:41,920
it's imperative

1237
00:47:46,390 --> 00:47:43,680
that while we proceed on these missions

1238
00:47:48,710 --> 00:47:46,400

that we also at a low level

1239
00:47:50,710 --> 00:47:48,720
make the technology investments required

1240
00:47:52,710 --> 00:47:50,720
for our future make the basic research

1241
00:47:54,870 --> 00:47:52,720
the applied research investments

1242
00:47:57,190 --> 00:47:54,880
required for our future

1243
00:47:58,950 --> 00:47:57,200
when i think of nasa i think all the way

1244
00:47:59,910 --> 00:47:58,960
back to the space act and i think of

1245
00:48:02,790 --> 00:47:59,920
three

1246
00:48:05,750 --> 00:48:02,800
long-standing core competencies

1247
00:48:07,510 --> 00:48:05,760
basic and applied research

1248
00:48:09,910 --> 00:48:07,520
system might include software in there

1249
00:48:11,670 --> 00:48:09,920
but flight system development

1250
00:48:13,430 --> 00:48:11,680
and mission operations

1251
00:48:16,150 --> 00:48:13,440
you take any one of those three things

1252
00:48:18,390 --> 00:48:16,160
out and nasa's not nasa

1253
00:48:19,990 --> 00:48:18,400
all three are required now from a budget

1254
00:48:21,589 --> 00:48:20,000
standpoint they don't all require equal

1255
00:48:24,150 --> 00:48:21,599
budgets that's that's not what i'm

1256
00:48:25,910 --> 00:48:24,160
saying but all three have to be nurtured

1257
00:48:28,230 --> 00:48:25,920
all three have to be

1258
00:48:30,309 --> 00:48:28,240
at a critical mass

1259
00:48:32,870 --> 00:48:30,319
because our technology investments at

1260
00:48:34,710 --> 00:48:32,880
nasa are motivated by our missions and

1261
00:48:36,710 --> 00:48:34,720
our missions are only as big as the

1262
00:48:37,750 --> 00:48:36,720
technologies and capabilities that we've

1263
00:48:39,589 --> 00:48:37,760

proven

1264
00:48:41,829 --> 00:48:39,599
these are these are integrated core

1265
00:48:44,950 --> 00:48:41,839
competencies these are at the core of

1266
00:48:46,710 --> 00:48:44,960
what makes nasa a special place for our

1267
00:48:48,390 --> 00:48:46,720
country and a special place actually for

1268
00:48:49,750 --> 00:48:48,400
the engineers and scientists across the

1269
00:48:50,950 --> 00:48:49,760
country

1270
00:48:53,270 --> 00:48:50,960
that work there

1271
00:48:54,710 --> 00:48:53,280
i've had the privilege

1272
00:48:57,910 --> 00:48:54,720
over this past year and a half of

1273
00:49:00,309 --> 00:48:57,920
representing those folks that are doing

1274
00:49:02,390 --> 00:49:00,319
the basic and applied research

1275
00:49:04,950 --> 00:49:02,400
the technology developments that are

1276
00:49:07,589 --> 00:49:04,960
critical for our nation's future and for

1277
00:49:09,589 --> 00:49:07,599
our future in space and i can tell you

1278
00:49:10,710 --> 00:49:09,599
first from firsthand accounts that these

1279
00:49:13,670 --> 00:49:10,720
folks

1280
00:49:15,270 --> 00:49:13,680
at the nasa centers in industry in small

1281
00:49:16,950 --> 00:49:15,280
business at universities like the

1282
00:49:20,309 --> 00:49:16,960
university of maryland

1283
00:49:22,390 --> 00:49:20,319
are thrilled and excited and ready to go

1284
00:49:24,870 --> 00:49:22,400
and they're contributing today

1285
00:49:26,470 --> 00:49:24,880
to our nation's future in space

1286
00:49:28,230 --> 00:49:26,480
with the work they're doing that will

1287
00:49:29,750 --> 00:49:28,240
come to fruition

1288
00:49:31,910 --> 00:49:29,760

in the future

1289
00:49:33,670 --> 00:49:31,920
now we make technology investments uh

1290
00:49:35,990 --> 00:49:33,680
for a number of reasons we make them as

1291
00:49:37,670 --> 00:49:36,000
i've been saying to enable our future in

1292
00:49:39,510 --> 00:49:37,680
space to enable our future science

1293
00:49:40,390 --> 00:49:39,520
missions our future human exploration

1294
00:49:42,549 --> 00:49:40,400
missions

1295
00:49:44,390 --> 00:49:42,559
we also make the federal government also

1296
00:49:47,109 --> 00:49:44,400
makes these investments because they

1297
00:49:49,430 --> 00:49:47,119
build our economic competitiveness

1298
00:49:51,990 --> 00:49:49,440
we know that dollars when the federal

1299
00:49:55,109 --> 00:49:52,000
government invests dollars in basic and

1300
00:49:57,030 --> 00:49:55,119
applied research the economy reaps a

1301
00:49:59,510 --> 00:49:57,040
multiplier of the dollars that are

1302
00:50:01,430 --> 00:49:59,520
invested uh just the past few weeks by

1303
00:50:03,670 --> 00:50:01,440
the way there were a whole bunch of news

1304
00:50:05,829 --> 00:50:03,680
articles out about the human genome

1305
00:50:07,510 --> 00:50:05,839
project and about for every dollar the

1306
00:50:09,270 --> 00:50:07,520
federal government invested in the human

1307
00:50:13,670 --> 00:50:09,280
genome project

1308
00:50:15,270 --> 00:50:13,680
over a hundred dollars were put into the

1309
00:50:16,710 --> 00:50:15,280
economy

1310
00:50:19,109 --> 00:50:16,720
if nasa could get that kind of

1311
00:50:20,549 --> 00:50:19,119
multiplier i mean just think of of what

1312
00:50:22,470 --> 00:50:20,559
that would do for people around this

1313
00:50:24,549 --> 00:50:22,480

country in terms of jobs

1314
00:50:26,390 --> 00:50:24,559
and and our economy

1315
00:50:27,910 --> 00:50:26,400
we also invest in technology because

1316
00:50:30,069 --> 00:50:27,920
it's a way of staying at the cutting

1317
00:50:32,790 --> 00:50:30,079
edge right universities know this at

1318
00:50:34,069 --> 00:50:32,800
their core nasa knows this at its core

1319
00:50:36,390 --> 00:50:34,079
and that's why there's such a strong

1320
00:50:39,109 --> 00:50:36,400
partnership between universities and

1321
00:50:41,750 --> 00:50:39,119
nasa uh small business larger companies

1322
00:50:44,230 --> 00:50:41,760
they know this as well it's by pushing

1323
00:50:46,710 --> 00:50:44,240
boundaries of aeroscience and taking

1324
00:50:49,109 --> 00:50:46,720
informed risk that these future missions

1325
00:50:51,829 --> 00:50:49,119
will one day be possible

1326
00:50:54,150 --> 00:50:51,839
the 21st century will be won

1327
00:50:56,549 --> 00:50:54,160
by those who innovate by those who seek

1328
00:50:58,390 --> 00:50:56,559
breakthroughs by those who create that

1329
00:51:01,510 --> 00:50:58,400
future and i'm here to tell you today

1330
00:51:03,349 --> 00:51:01,520
that nasa is doing that nasa is doing

1331
00:51:06,069 --> 00:51:03,359
that every day

1332
00:51:08,790 --> 00:51:06,079
the engineers and scientists are making

1333
00:51:11,349 --> 00:51:08,800
great strides towards that future

1334
00:51:13,430 --> 00:51:11,359
and when we create these missions future

1335
00:51:15,109 --> 00:51:13,440
science missions our future exploration

1336
00:51:16,230 --> 00:51:15,119
missions when we create that future in

1337
00:51:18,790 --> 00:51:16,240
space

1338
00:51:21,510 --> 00:51:18,800

i should also point out we improve life

1339
00:51:23,430 --> 00:51:21,520
every day here on the earth

1340
00:51:25,510 --> 00:51:23,440
the technology developments that go into

1341
00:51:27,750 --> 00:51:25,520
nasa's future space missions are often

1342
00:51:30,390 --> 00:51:27,760
spun off into new businesses

1343
00:51:32,470 --> 00:51:30,400
uh new products new services that we

1344
00:51:34,069 --> 00:51:32,480
utilize every day in the biomedical

1345
00:51:37,030 --> 00:51:34,079
industry

1346
00:51:39,670 --> 00:51:37,040
the protective armor that our police

1347
00:51:42,069 --> 00:51:39,680
firefighters and military personnel wear

1348
00:51:45,109 --> 00:51:42,079
blood flow monitoring devices artificial

1349
00:51:47,910 --> 00:51:45,119
hearts even lasik eye surgery

1350
00:51:48,710 --> 00:51:47,920
the gps system that's in leland's phone

1351
00:51:50,710 --> 00:51:48,720
or

1352
00:51:52,150 --> 00:51:50,720
my friend joe parish's car

1353
00:51:54,950 --> 00:51:52,160
right all of these things that we take

1354
00:51:57,190 --> 00:51:54,960
for granted the weather channel

1355
00:51:59,349 --> 00:51:57,200
um they all come from our past

1356
00:52:01,670 --> 00:51:59,359
investments in space and they certainly

1357
00:52:03,030 --> 00:52:01,680
have all improved my life and i'm sure

1358
00:52:04,470 --> 00:52:03,040
that you would agree they've improved

1359
00:52:07,670 --> 00:52:04,480
yours

1360
00:52:10,150 --> 00:52:07,680
so when i think about our space program

1361
00:52:11,990 --> 00:52:10,160
i first of all as an engineer i

1362
00:52:12,950 --> 00:52:12,000
immediately am drawn

1363
00:52:15,829 --> 00:52:12,960

to the

1364
00:52:18,549 --> 00:52:15,839
charm of our future missions in science

1365
00:52:21,589 --> 00:52:18,559
and in human exploration but i'm also

1366
00:52:22,790 --> 00:52:21,599
reminded that those missions can only be

1367
00:52:25,670 --> 00:52:22,800
as bold

1368
00:52:28,230 --> 00:52:25,680
as our techno technological investments

1369
00:52:29,829 --> 00:52:28,240
that we make today are wise

1370
00:52:31,750 --> 00:52:29,839
and they and that without those

1371
00:52:33,670 --> 00:52:31,760
technological investments

1372
00:52:35,990 --> 00:52:33,680
we won't reach

1373
00:52:38,790 --> 00:52:36,000
where we're trying to go we will we'll

1374
00:52:40,549 --> 00:52:38,800
be grasping for that future

1375
00:52:42,309 --> 00:52:40,559
with

1376
00:52:44,950 --> 00:52:42,319
older technology that will make it

1377
00:52:48,069 --> 00:52:44,960
harder to have a sustainable and

1378
00:52:50,069 --> 00:52:48,079
affordable exploration future

1379
00:52:51,190 --> 00:52:50,079
like i said i'm an engineer

1380
00:52:53,190 --> 00:52:51,200
who

1381
00:52:54,230 --> 00:52:53,200
believes this passionately

1382
00:53:01,270 --> 00:52:54,240
i

1383
00:53:02,790 --> 00:53:01,280
for me to come to nasa and and get to

1384
00:53:04,790 --> 00:53:02,800
represent

1385
00:53:06,230 --> 00:53:04,800
uh the engineers and scientists that

1386
00:53:07,670 --> 00:53:06,240
make we're going to make this future

1387
00:53:09,510 --> 00:53:07,680
possible and are making this future

1388
00:53:10,390 --> 00:53:09,520

possible every day

1389
00:53:12,069 --> 00:53:10,400
um

1390
00:53:14,549 --> 00:53:12,079
there's one question that i did want to

1391
00:53:17,190 --> 00:53:14,559
get to before i pass it on to leland it

1392
00:53:19,109 --> 00:53:17,200
also came in on twitter and the question

1393
00:53:21,510 --> 00:53:19,119
that was asked is a

1394
00:53:23,670 --> 00:53:21,520
very wise question was

1395
00:53:25,750 --> 00:53:23,680
how do we ensure that the best ideas are

1396
00:53:27,109 --> 00:53:25,760
harnessed right everyone has ideas i'm

1397
00:53:28,790 --> 00:53:27,119
sure here at the university of maryland

1398
00:53:30,470 --> 00:53:28,800
if i got a thousand students together

1399
00:53:32,710 --> 00:53:30,480
i'd have ten thousand

1400
00:53:34,390 --> 00:53:32,720
great ideas

1401
00:53:35,829 --> 00:53:34,400
there are and there are ideas that are

1402
00:53:37,670 --> 00:53:35,839
pouring in by the way to our

1403
00:53:39,030 --> 00:53:37,680
technological development programs from

1404
00:53:40,790 --> 00:53:39,040
across the country they come from

1405
00:53:42,309 --> 00:53:40,800
universities they come from small

1406
00:53:44,069 --> 00:53:42,319
businesses they come from the nasa

1407
00:53:45,750 --> 00:53:44,079
centers

1408
00:53:47,510 --> 00:53:45,760
and so the one thing i do want to

1409
00:53:49,589 --> 00:53:47,520
mention so that we can maybe discuss it

1410
00:53:51,109 --> 00:53:49,599
more in the future is

1411
00:53:54,549 --> 00:53:51,119
one of the things that nasa is trying to

1412
00:53:57,109 --> 00:53:54,559
do is engage america in this journey

1413
00:53:59,030 --> 00:53:57,119

we can't do this by ourselves

1414
00:54:00,710 --> 00:53:59,040
so the technological developments that

1415
00:54:02,630 --> 00:54:00,720
i'm speaking about the technological

1416
00:54:04,790 --> 00:54:02,640
developments that we need for our future

1417
00:54:06,630 --> 00:54:04,800
science and exploration missions they

1418
00:54:08,470 --> 00:54:06,640
will come from across america they will

1419
00:54:09,430 --> 00:54:08,480
come from innovators all around the

1420
00:54:11,829 --> 00:54:09,440
country

1421
00:54:14,230 --> 00:54:11,839
we have to do this in an open

1422
00:54:16,150 --> 00:54:14,240
and competitive manner

1423
00:54:18,230 --> 00:54:16,160
and you see us taking steps that way

1424
00:54:20,230 --> 00:54:18,240
with some of the solicitations actually

1425
00:54:21,349 --> 00:54:20,240
that administrator bolden mentioned in

1426
00:54:23,030 --> 00:54:21,359
his speech

1427
00:54:24,870 --> 00:54:23,040
he mentioned the nasa institute for

1428
00:54:27,990 --> 00:54:24,880
advanced concepts

1429
00:54:31,030 --> 00:54:28,000
which this week announced 30

1430
00:54:32,790 --> 00:54:31,040
visionary advanced concept awards those

1431
00:54:34,950 --> 00:54:32,800
awards by the way just happened to be

1432
00:54:36,870 --> 00:54:34,960
divided about 30 percent

1433
00:54:39,510 --> 00:54:36,880
went to the nasa centers

1434
00:54:41,670 --> 00:54:39,520
about 30 percent went to academia and

1435
00:54:43,589 --> 00:54:41,680
the rest were went to industry small and

1436
00:54:46,150 --> 00:54:43,599
large business around the country that

1437
00:54:47,430 --> 00:54:46,160
wasn't by design but that's just to me

1438
00:54:49,190 --> 00:54:47,440

that's a little bit of proof that there

1439
00:54:51,190 --> 00:54:49,200
are great ideas everywhere there are

1440
00:54:52,950 --> 00:54:51,200
innovators everywhere in this country

1441
00:54:55,910 --> 00:54:52,960
and one of the things nasa needs to do

1442
00:54:58,069 --> 00:54:55,920
is actually just engage them

1443
00:54:58,950 --> 00:54:58,079
and that will enable this future that we

1444
00:55:06,230 --> 00:54:58,960
seek

1445
00:55:10,230 --> 00:55:08,870
uh so let me uh turn it over now to my

1446
00:55:13,109 --> 00:55:10,240
good friend

1447
00:55:14,230 --> 00:55:13,119
uh mr leland melvin thanks bobby

1448
00:55:16,630 --> 00:55:14,240
i uh

1449
00:55:18,710 --> 00:55:16,640
i'm really excited to be here because my

1450
00:55:20,309 --> 00:55:18,720
my job i've been the last eight months

1451
00:55:21,510 --> 00:55:20,319
been the associate administrator for

1452
00:55:23,589 --> 00:55:21,520
education

1453
00:55:25,510 --> 00:55:23,599
and charlie has charged me to help

1454
00:55:26,870 --> 00:55:25,520
inspire and motivate our next generation

1455
00:55:29,670 --> 00:55:26,880
of explorers

1456
00:55:32,150 --> 00:55:29,680
so all the missions that walid and lori

1457
00:55:34,150 --> 00:55:32,160
and bobby is talking about innovation we

1458
00:55:36,470 --> 00:55:34,160
need a very technologically and

1459
00:55:38,150 --> 00:55:36,480
digitally literate workforce

1460
00:55:40,549 --> 00:55:38,160
to make these things happen

1461
00:55:42,549 --> 00:55:40,559
and it starts at a very early age

1462
00:55:44,230 --> 00:55:42,559
usually middle schools where students

1463
00:55:46,069 --> 00:55:44,240

get turned on and turned off to science

1464
00:55:48,870 --> 00:55:46,079
and sometimes even before that

1465
00:55:51,430 --> 00:55:48,880
now i have had two

1466
00:55:52,789 --> 00:55:51,440
very defining moments in my life at an

1467
00:55:55,750 --> 00:55:52,799
early age

1468
00:55:59,030 --> 00:55:55,760
and the first one was when i turned over

1469
00:56:02,710 --> 00:55:59,040
a desk in my elementary school class

1470
00:56:04,870 --> 00:56:02,720
and mrs martin grabbed my ear and took

1471
00:56:07,589 --> 00:56:04,880
me to the principal's office

1472
00:56:08,789 --> 00:56:07,599
and mrs carl while you know back then

1473
00:56:10,230 --> 00:56:08,799
you could have a little corporal

1474
00:56:12,230 --> 00:56:10,240
punishment so

1475
00:56:14,710 --> 00:56:12,240
i had a little hand in my development

1476
00:56:17,190 --> 00:56:14,720
from the principal

1477
00:56:19,190 --> 00:56:17,200
as i walked home i stopped by my friend

1478
00:56:21,589 --> 00:56:19,200
butch's house and his mother was a

1479
00:56:24,230 --> 00:56:21,599
teacher so they have that telepathy

1480
00:56:26,150 --> 00:56:24,240
thing you know that's teacher network

1481
00:56:28,150 --> 00:56:26,160
she had a hand in my development

1482
00:56:30,950 --> 00:56:28,160
and then when i got home i got the real

1483
00:56:34,549 --> 00:56:30,960
deal from my dad who had the bigger hand

1484
00:56:36,069 --> 00:56:34,559
in my development but i say this because

1485
00:56:38,630 --> 00:56:36,079
it takes a village to raise a child

1486
00:56:41,030 --> 00:56:38,640
that's an african proverb and we are all

1487
00:56:42,309 --> 00:56:41,040
part of that village to ensure that our

1488
00:56:43,589 --> 00:56:42,319

our children

1489
00:56:45,109 --> 00:56:43,599
and these students

1490
00:56:47,190 --> 00:56:45,119
have everything in their power they're

1491
00:56:48,470 --> 00:56:47,200
armed with everything in their power to

1492
00:56:50,470 --> 00:56:48,480
succeed

1493
00:56:53,190 --> 00:56:50,480
and to be the future technologists the

1494
00:56:54,390 --> 00:56:53,200
future innovators the future rocket

1495
00:56:56,630 --> 00:56:54,400
scientists

1496
00:56:58,630 --> 00:56:56,640
the future explorers

1497
00:57:00,789 --> 00:56:58,640
so the only way that we're going to move

1498
00:57:03,910 --> 00:57:00,799
forward in our society

1499
00:57:05,829 --> 00:57:03,920
is to allow the village to come together

1500
00:57:08,150 --> 00:57:05,839
as we're doing here

1501
00:57:10,870 --> 00:57:08,160
and have a role and a part in the

1502
00:57:12,309 --> 00:57:10,880
development of these children

1503
00:57:15,109 --> 00:57:12,319
now there's another piece of this so

1504
00:57:17,589 --> 00:57:15,119
that was my first defining moment

1505
00:57:20,230 --> 00:57:17,599
showing that the community cared about

1506
00:57:21,990 --> 00:57:20,240
my education my development making sure

1507
00:57:24,950 --> 00:57:22,000
that i'd be a part of a functioning

1508
00:57:27,270 --> 00:57:24,960
society that does great things

1509
00:57:29,109 --> 00:57:27,280
the second defining moment was i think i

1510
00:57:30,870 --> 00:57:29,119
was in eighth grade and my mom gave me a

1511
00:57:33,270 --> 00:57:30,880
chemistry set

1512
00:57:34,470 --> 00:57:33,280
and this was before osha had you know

1513
00:57:36,630 --> 00:57:34,480

child

1514
00:57:39,910 --> 00:57:36,640
appropriate age for doing things

1515
00:57:43,829 --> 00:57:39,920
so i mix these two to similar chemicals

1516
00:57:46,630 --> 00:57:43,839
and created this fantastic explosion

1517
00:57:48,069 --> 00:57:46,640
that orange and white smoke can burn the

1518
00:57:50,069 --> 00:57:48,079
hole in my mom's carpet have another

1519
00:57:52,789 --> 00:57:50,079
hand of my development

1520
00:57:54,870 --> 00:57:52,799
but this fueled my curiosity to be a

1521
00:57:56,069 --> 00:57:54,880
scientist i became a chemistry major in

1522
00:57:57,430 --> 00:57:56,079
college

1523
00:58:00,309 --> 00:57:57,440
and so this

1524
00:58:01,910 --> 00:58:00,319
out of school hands-on experiential

1525
00:58:03,589 --> 00:58:01,920
activity

1526
00:58:06,150 --> 00:58:03,599
helped me see

1527
00:58:07,270 --> 00:58:06,160
the the excitement of of science and

1528
00:58:09,990 --> 00:58:07,280
engineering

1529
00:58:11,670 --> 00:58:10,000
and that that fueled me to become a

1530
00:58:14,230 --> 00:58:11,680
chemist as i said

1531
00:58:17,270 --> 00:58:14,240
but how do we do this as a

1532
00:58:18,870 --> 00:58:17,280
society to get these students to see

1533
00:58:22,069 --> 00:58:18,880
how they can become something like a

1534
00:58:23,589 --> 00:58:22,079
bobby braun or a lorelessian or a wallet

1535
00:58:25,829 --> 00:58:23,599
how do we let them see this this

1536
00:58:27,349 --> 00:58:25,839
inspiration it's allowing them to see

1537
00:58:28,789 --> 00:58:27,359
that they can dream

1538
00:58:30,470 --> 00:58:28,799

there are so many kids that are

1539
00:58:32,789 --> 00:58:30,480
disaffected by

1540
00:58:35,829 --> 00:58:32,799
the inability for a teacher to share

1541
00:58:38,390 --> 00:58:35,839
with them the proper way to do a an

1542
00:58:40,390 --> 00:58:38,400
integral or the proper way to learn

1543
00:58:41,270 --> 00:58:40,400
different systems to get to the next

1544
00:58:43,270 --> 00:58:41,280
step

1545
00:58:45,349 --> 00:58:43,280
math science engineering technology

1546
00:58:47,430 --> 00:58:45,359
these are all the things that nasa is

1547
00:58:50,870 --> 00:58:47,440
trying to do to ensure

1548
00:58:52,549 --> 00:58:50,880
that kids have the right grout the right

1549
00:58:54,950 --> 00:58:52,559
tools to move forward but also the right

1550
00:58:56,630 --> 00:58:54,960
the teachers have the same thing

1551
00:58:59,030 --> 00:58:56,640
we're working in programs where we

1552
00:59:01,190 --> 00:58:59,040
support teachers with curriculum

1553
00:59:03,349 --> 00:59:01,200
with hands-on experiences the

1554
00:59:05,349 --> 00:59:03,359
experiential hands-on piece is not just

1555
00:59:07,510 --> 00:59:05,359
for the kids it's for the teachers too

1556
00:59:09,990 --> 00:59:07,520
so a couple of weeks ago i was down in

1557
00:59:13,109 --> 00:59:10,000
in houston at nasa jsc

1558
00:59:15,589 --> 00:59:13,119
and we flew on the case what was on the

1559
00:59:16,829 --> 00:59:15,599
zero g airplane which we affectionately

1560
00:59:19,190 --> 00:59:16,839
called the vomit

1561
00:59:21,190 --> 00:59:19,200
comet but we had

1562
00:59:23,270 --> 00:59:21,200
84

1563
00:59:24,870 --> 00:59:23,280

k-12 teachers

1564
00:59:26,470 --> 00:59:24,880
that supplied

1565
00:59:28,710 --> 00:59:26,480
research experiments they worked in

1566
00:59:31,990 --> 00:59:28,720
groups of four had research experiments

1567
00:59:34,549 --> 00:59:32,000
that they flew on this zero-g airplane

1568
00:59:35,910 --> 00:59:34,559
and i took down one of our

1569
00:59:38,470 --> 00:59:35,920
white house office of science and

1570
00:59:40,710 --> 00:59:38,480
technology policy analyst with me to let

1571
00:59:43,109 --> 00:59:40,720
him see what are the nasa unique things

1572
00:59:45,990 --> 00:59:43,119
that we can offer so that kids can be

1573
00:59:48,309 --> 00:59:46,000
motivated and inspired so we all have to

1574
00:59:49,270 --> 00:59:48,319
figure out what do we uniquely have to

1575
00:59:51,589 --> 00:59:49,280
offer

1576
00:59:53,030 --> 00:59:51,599
to show that piece of inspiration and

1577
00:59:54,870 --> 00:59:53,040
that's what this is all about this

1578
00:59:57,829 --> 00:59:54,880
village coming together

1579
01:00:00,870 --> 00:59:57,839
to share these unique experiences

1580
01:00:03,430 --> 01:00:00,880
to blow up the rug in my mom's room to

1581
01:00:05,190 --> 01:00:03,440
have these defining moments so that

1582
01:00:06,870 --> 01:00:05,200
they will know that there's something

1583
01:00:10,069 --> 01:00:06,880
out there for them in the future this

1584
01:00:12,069 --> 01:00:10,079
exploration the science the engineering

1585
01:00:15,190 --> 01:00:12,079
how many of you in here by a show of

1586
01:00:16,870 --> 01:00:15,200
hands have had a defining moment early

1587
01:00:19,109 --> 01:00:16,880
in your life that led you to where you

1588
01:00:20,549 --> 01:00:19,119

are today

1589
01:00:23,670 --> 01:00:20,559
a teacher

1590
01:00:25,990 --> 01:00:23,680
or an experiment or building a bicycle

1591
01:00:27,750 --> 01:00:26,000
or doing something with your hands

1592
01:00:29,190 --> 01:00:27,760
we have programs like summer of

1593
01:00:31,670 --> 01:00:29,200
innovation where we're trying to reach

1594
01:00:34,309 --> 01:00:31,680
underrepresented underserved students

1595
01:00:36,390 --> 01:00:34,319
in the summer having a summer experience

1596
01:00:37,990 --> 01:00:36,400
because lots of times the summer time is

1597
01:00:40,069 --> 01:00:38,000
when you get the summer slide

1598
01:00:41,910 --> 01:00:40,079
and the students don't do anything and

1599
01:00:43,030 --> 01:00:41,920
so by the time they get back to school

1600
01:00:45,190 --> 01:00:43,040
in the fall

1601
01:00:47,190 --> 01:00:45,200
they're having to play catch up again

1602
01:00:48,630 --> 01:00:47,200
so this this is a program where we reach

1603
01:00:50,870 --> 01:00:48,640
out to students but we also reach out to

1604
01:00:53,030 --> 01:00:50,880
teachers to give teachers these same

1605
01:00:55,270 --> 01:00:53,040
types of hands-on experiences

1606
01:00:58,230 --> 01:00:55,280
we're looking for collaborations with

1607
01:01:00,390 --> 01:00:58,240
industry non-profit for-profit other

1608
01:01:03,270 --> 01:01:00,400
government organizations to see how we

1609
01:01:05,030 --> 01:01:03,280
can better leverage the nasa resources

1610
01:01:05,910 --> 01:01:05,040
and it might not just be money it could

1611
01:01:07,990 --> 01:01:05,920
be

1612
01:01:10,230 --> 01:01:08,000
subject matter experts that come into a

1613
01:01:14,390 --> 01:01:10,240

school or work with you it could be you

1614
01:01:16,470 --> 01:01:14,400
know giving awards for gamification or

1615
01:01:18,630 --> 01:01:16,480
badging to have the

1616
01:01:21,270 --> 01:01:18,640
the winner get to fly on the zero g

1617
01:01:23,270 --> 01:01:21,280
aircraft aircraft or where a student or

1618
01:01:24,789 --> 01:01:23,280
a teacher can actually build

1619
01:01:26,309 --> 01:01:24,799
experiments to go up on a sounding

1620
01:01:28,309 --> 01:01:26,319
rocket or to go to the international

1621
01:01:29,750 --> 01:01:28,319
space station so these are some of the

1622
01:01:33,109 --> 01:01:29,760
assets and things that we have that we

1623
01:01:35,030 --> 01:01:33,119
can offer up in a strategic partnership

1624
01:01:38,309 --> 01:01:35,040
we have an announcement of opportunity

1625
01:01:40,309 --> 01:01:38,319
that's ongoing that you can apply to to

1626
01:01:41,589 --> 01:01:40,319
get a space act agreement with nasa and

1627
01:02:04,390 --> 01:01:41,599
we'll talk about some of these things

1628
01:02:09,349 --> 01:02:06,950
we're in january of next year to show

1629
01:02:11,510 --> 01:02:09,359
how the federal government and the stem

1630
01:02:13,750 --> 01:02:11,520
fields are working together so that we

1631
01:02:15,670 --> 01:02:13,760
don't duplicate efforts

1632
01:02:17,750 --> 01:02:15,680
how many summer camps are doing the same

1633
01:02:19,990 --> 01:02:17,760
things how many other organizations are

1634
01:02:22,390 --> 01:02:20,000
doing very similar things how do we pull

1635
01:02:24,309 --> 01:02:22,400
them together and leverage the resources

1636
01:02:25,430 --> 01:02:24,319
that they're doing to make a bigger

1637
01:02:27,510 --> 01:02:25,440
impact

1638
01:02:29,670 --> 01:02:27,520

i want to try to take things to scale i

1639
01:02:32,069 --> 01:02:29,680
want to try to help motivate and inspire

1640
01:02:41,270 --> 01:02:32,079
that's what nasa education is doing so

1641
01:02:45,670 --> 01:02:43,190
thank you to our panel and our speakers

1642
01:02:47,829 --> 01:02:45,680
and now is the really great part

1643
01:02:50,230 --> 01:02:47,839
an opportunity for all of you to ask

1644
01:02:52,549 --> 01:02:50,240
questions of our panelists

1645
01:02:54,390 --> 01:02:52,559
we have microphones here in the aisles

1646
01:02:56,230 --> 01:02:54,400
if you would like to ask a question of

1647
01:02:57,029 --> 01:02:56,240
one of our panelists please go to the

1648
01:03:00,069 --> 01:02:57,039
mic

1649
01:03:02,470 --> 01:03:00,079
in the aisle so that our viewing

1650
01:03:04,470 --> 01:03:02,480
audience on nasa television over the web

1651
01:03:07,990 --> 01:03:04,480
can hear your question

1652
01:03:12,549 --> 01:03:09,750
good morning folks

1653
01:03:16,470 --> 01:03:12,559
i have a general question about

1654
01:03:18,069 --> 01:03:16,480
technology for you at nasa

1655
01:03:19,990 --> 01:03:18,079
how much

1656
01:03:24,870 --> 01:03:20,000
do you think

1657
01:03:29,029 --> 01:03:27,029
technologies and exploration

1658
01:03:32,470 --> 01:03:29,039
technologies how strong do you think

1659
01:03:34,549 --> 01:03:32,480
this synergy is if you think it exists

1660
01:03:35,430 --> 01:03:34,559
and how much do you

1661
01:03:37,990 --> 01:03:35,440
put

1662
01:03:41,029 --> 01:03:38,000
how much mental effort do you think you

1663
01:03:43,990 --> 01:03:41,039

guys can should and have invested

1664
01:03:50,470 --> 01:03:44,000
in making that synergy a cornerstone of

1665
01:03:54,470 --> 01:03:52,150
that's a great question

1666
01:03:56,390 --> 01:03:54,480
thank you for that

1667
01:03:58,309 --> 01:03:56,400
i think it's very true

1668
01:04:00,470 --> 01:03:58,319
that the technology investments that we

1669
01:04:02,309 --> 01:04:00,480
make for our future space missions uh

1670
01:04:04,950 --> 01:04:02,319
help can help us right here on the earth

1671
01:04:07,190 --> 01:04:04,960
and in particular uh in energy

1672
01:04:09,349 --> 01:04:07,200
i can give you a couple of examples uh

1673
01:04:11,670 --> 01:04:09,359
so when i was an engineer i worked on a

1674
01:04:13,990 --> 01:04:11,680
mission uh to mars actually

1675
01:04:15,829 --> 01:04:14,000
the mars 2001 lander and and to be

1676
01:04:18,069 --> 01:04:15,839
honest with you it never flew

1677
01:04:20,549 --> 01:04:18,079
but uh there was a

1678
01:04:23,910 --> 01:04:20,559
payload on that mission that was

1679
01:04:24,710 --> 01:04:23,920
designed by a university professor

1680
01:04:32,710 --> 01:04:24,720
at

1681
01:04:34,390 --> 01:04:32,720
after it didn't fly he actually left the

1682
01:04:36,549 --> 01:04:34,400
university went to california and he

1683
01:04:38,390 --> 01:04:36,559
started a small business

1684
01:04:39,910 --> 01:04:38,400
the reason he started that business is

1685
01:04:43,029 --> 01:04:39,920
because he realized if he took his

1686
01:04:45,029 --> 01:04:43,039
little mars payload that was designed to

1687
01:04:47,510 --> 01:04:45,039
produce propellant constituents out of

1688
01:04:48,549 --> 01:04:47,520

the atmosphere of mars and he ran it in

1689
01:04:51,270 --> 01:04:48,559
reverse

1690
01:04:54,150 --> 01:04:51,280
he'd have a very efficient fuel cell

1691
01:04:55,910 --> 01:04:54,160
and those systems are now popping up all

1692
01:04:58,230 --> 01:04:55,920
over california they're called bloom

1693
01:04:59,829 --> 01:04:58,240
boxes i don't know if anybody's heard of

1694
01:05:00,870 --> 01:04:59,839
bloom energy

1695
01:05:03,270 --> 01:05:00,880
here

1696
01:05:04,950 --> 01:05:03,280
but you know for instance nasa's got a

1697
01:05:06,789 --> 01:05:04,960
new energy efficient building at the

1698
01:05:09,029 --> 01:05:06,799
nasa ames research center

1699
01:05:10,870 --> 01:05:09,039
and it's got bloom boxes uh for some of

1700
01:05:12,870 --> 01:05:10,880
its power there are google headquarters

1701
01:05:15,190 --> 01:05:12,880
there are ebay headquarters

1702
01:05:17,510 --> 01:05:15,200
uh so there's a direct uh example for

1703
01:05:19,990 --> 01:05:17,520
you uh in his speech uh the

1704
01:05:21,750 --> 01:05:20,000
administrator mentioned juno

1705
01:05:23,349 --> 01:05:21,760
juno is is

1706
01:05:26,309 --> 01:05:23,359
the first

1707
01:05:28,950 --> 01:05:26,319
solar-powered spacecraft to go as far as

1708
01:05:31,349 --> 01:05:28,960
jupiter it's only able to accomplish its

1709
01:05:33,910 --> 01:05:31,359
emissions because of the high efficiency

1710
01:05:35,750 --> 01:05:33,920
solar cells that will provide the power

1711
01:05:37,589 --> 01:05:35,760
for the instruments

1712
01:05:39,589 --> 01:05:37,599
to do that mission now those

1713
01:05:40,470 --> 01:05:39,599

high-efficiency solar cells didn't just

1714
01:05:43,029 --> 01:05:40,480
happen

1715
01:05:45,430 --> 01:05:43,039
it took years of investment

1716
01:05:46,789 --> 01:05:45,440
by nasa to develop

1717
01:05:49,190 --> 01:05:46,799
by the way in collaboration with

1718
01:05:52,230 --> 01:05:49,200
business and universities

1719
01:05:54,950 --> 01:05:52,240
to develop those photovoltaic cells and

1720
01:05:57,430 --> 01:05:54,960
those same cells can be transferred and

1721
01:06:00,390 --> 01:05:57,440
in some cases in in many cases have been

1722
01:06:02,390 --> 01:06:00,400
transferred to commercial applications

1723
01:06:05,349 --> 01:06:02,400
right here on the earth

1724
01:06:06,870 --> 01:06:05,359
so those are just a couple examples

1725
01:06:09,670 --> 01:06:06,880
but i should also tell you that in my

1726
01:06:11,430 --> 01:06:09,680
role as chief technologist i am working

1727
01:06:13,349 --> 01:06:11,440
to set up partnerships with other

1728
01:06:15,670 --> 01:06:13,359
government agencies

1729
01:06:17,750 --> 01:06:15,680
i've talked with the director of arpa-e

1730
01:06:19,349 --> 01:06:17,760
i've been over with to doe i've been to

1731
01:06:21,430 --> 01:06:19,359
a number of other agencies that aren't

1732
01:06:23,589 --> 01:06:21,440
in the energy sector as well

1733
01:06:25,829 --> 01:06:23,599
and one of the things i've noticed about

1734
01:06:27,349 --> 01:06:25,839
agencies we all have different missions

1735
01:06:29,349 --> 01:06:27,359
right energy has a different mission

1736
01:06:31,990 --> 01:06:29,359
than nasa which has a different mission

1737
01:06:35,430 --> 01:06:32,000
obviously than the dod

1738
01:06:37,109 --> 01:06:35,440

but where we all have commonality is in

1739
01:06:39,750 --> 01:06:37,119
advanced technology

1740
01:06:41,029 --> 01:06:39,760
and so when nasa makes investments in

1741
01:06:43,430 --> 01:06:41,039
technology

1742
01:06:45,510 --> 01:06:43,440
it creates partnerships partnership

1743
01:06:46,870 --> 01:06:45,520
opportunities i should say across

1744
01:06:49,990 --> 01:06:46,880
government

1745
01:06:51,589 --> 01:06:50,000
and in a way it makes the pie bigger for

1746
01:06:54,470 --> 01:06:51,599
all of us

1747
01:06:56,549 --> 01:06:54,480
and the fact that nasa is now

1748
01:06:58,150 --> 01:06:56,559
making technology investments and is

1749
01:07:00,150 --> 01:06:58,160
talking about how those investments will

1750
01:07:02,470 --> 01:07:00,160
help our missions in the future has

1751
01:07:04,789 --> 01:07:02,480
actually created a

1752
01:07:07,109 --> 01:07:04,799
some inertia for me a positive inertia

1753
01:07:09,670 --> 01:07:07,119
positive momentum for me with those

1754
01:07:12,630 --> 01:07:09,680
other government agencies

1755
01:07:14,630 --> 01:07:12,640
including doe and rpe so i think what

1756
01:07:18,150 --> 01:07:14,640
you'll see is nasa will continue to make

1757
01:07:19,510 --> 01:07:18,160
advances in technology in power uh in

1758
01:07:21,430 --> 01:07:19,520
propulsion

1759
01:07:23,510 --> 01:07:21,440
for our in-space missions and we'll

1760
01:07:27,029 --> 01:07:23,520
continue to transfer those

1761
01:07:28,950 --> 01:07:27,039
advances uh to benefit life here on the

1762
01:07:30,950 --> 01:07:28,960
earth yeah

1763
01:07:32,549 --> 01:07:30,960

i would just i would just add one quick

1764
01:07:34,069 --> 01:07:32,559
thing to that which is there's a unique

1765
01:07:36,309 --> 01:07:34,079
part of this when humans enter the

1766
01:07:38,950 --> 01:07:36,319
equation which is the long-term life

1767
01:07:40,870 --> 01:07:38,960
support systems to keep to sustain a

1768
01:07:43,270 --> 01:07:40,880
human mission of up to a year say to an

1769
01:07:45,670 --> 01:07:43,280
asteroid or two to three years to mars

1770
01:07:47,430 --> 01:07:45,680
you must by definition you can't take

1771
01:07:49,190 --> 01:07:47,440
everything with you you need to live for

1772
01:07:52,549 --> 01:07:49,200
two or three years in space you've got

1773
01:07:53,829 --> 01:07:52,559
to be able to generate or recycle we're

1774
01:07:56,789 --> 01:07:53,839
going to have the most efficient

1775
01:07:58,470 --> 01:07:56,799
recycling systems around on these on

1776
01:08:00,870 --> 01:07:58,480
these uh spaceships that we're going to

1777
01:08:02,789 --> 01:08:00,880
send to these other worlds and so those

1778
01:08:04,470 --> 01:08:02,799
yeah the water systems and and other

1779
01:08:06,309 --> 01:08:04,480
support systems

1780
01:08:07,910 --> 01:08:06,319
packaging advanced packaging systems

1781
01:08:09,510 --> 01:08:07,920
there's all kinds of ways that this can

1782
01:08:11,270 --> 01:08:09,520
flow back into

1783
01:08:13,990 --> 01:08:11,280
our everyday lives when you put humans

1784
01:08:15,829 --> 01:08:14,000
in that equation

1785
01:08:17,829 --> 01:08:15,839
we're doing many much of that today

1786
01:08:19,430 --> 01:08:17,839
actually on the iss right from the

1787
01:08:21,590 --> 01:08:19,440
pioneering space we're pioneering them

1788
01:08:23,349 --> 01:08:21,600

on the space station

1789
01:08:24,789 --> 01:08:23,359
okay a reminder that if you're following

1790
01:08:27,990 --> 01:08:24,799
us on twitter you can follow the

1791
01:08:30,070 --> 01:08:28,000
conversation at pound nasa future

1792
01:08:31,749 --> 01:08:30,080
you can also send questions to us

1793
01:08:35,189 --> 01:08:31,759
through the nasa twitter account for

1794
01:08:36,630 --> 01:08:35,199
technology at nasa underscore technology

1795
01:08:38,070 --> 01:08:36,640
and if you're here and have a question

1796
01:08:39,990 --> 01:08:38,080
please come up to the mics we'll take

1797
01:08:42,149 --> 01:08:40,000
one in the back

1798
01:08:43,269 --> 01:08:42,159
uh good morning my name is ray sedwick i

1799
01:08:44,390 --> 01:08:43,279
actually teach at the university of

1800
01:08:46,070 --> 01:08:44,400
maryland

1801
01:08:48,470 --> 01:08:46,080
and um

1802
01:08:50,470 --> 01:08:48,480
in my naive opinion it seems like the

1803
01:08:54,070 --> 01:08:50,480
biggest problem that nasa has is

1804
01:08:56,149 --> 01:08:54,080
actually pr um i think you guys probably

1805
01:08:57,430 --> 01:08:56,159
appreciate the fact that

1806
01:08:59,110 --> 01:08:57,440
you know you're kind of preaching to the

1807
01:09:01,590 --> 01:08:59,120
choir here and everybody that's

1808
01:09:02,709 --> 01:09:01,600
following along you know on twitter or

1809
01:09:05,910 --> 01:09:02,719
on the web

1810
01:09:07,590 --> 01:09:05,920
are also kind of part of the choir and i

1811
01:09:09,990 --> 01:09:07,600
mean nasa does a lot of great stuff in

1812
01:09:12,390 --> 01:09:10,000
terms of outreach you've talked about it

1813
01:09:14,709 --> 01:09:12,400

we recognize it but the aerospace

1814
01:09:16,070 --> 01:09:14,719
community is very small you know it's a

1815
01:09:17,590 --> 01:09:16,080
very it's a very

1816
01:09:18,709 --> 01:09:17,600
niche market

1817
01:09:20,229 --> 01:09:18,719
and

1818
01:09:23,430 --> 01:09:20,239
you know it seems to me that you know

1819
01:09:26,149 --> 01:09:23,440
our our military advertises

1820
01:09:27,829 --> 01:09:26,159
you know the the general public knows

1821
01:09:30,070 --> 01:09:27,839
what the military does because they see

1822
01:09:32,390 --> 01:09:30,080
advertising for it and it's great you

1823
01:09:34,870 --> 01:09:32,400
know you reach out to the kids and and

1824
01:09:36,950 --> 01:09:34,880
the hope is that you know they're going

1825
01:09:38,309 --> 01:09:36,960
to get excited and this information is

1826
01:09:40,390 --> 01:09:38,319
going to get disseminated but the

1827
01:09:41,749 --> 01:09:40,400
problem is the kids don't vote it's the

1828
01:09:43,430 --> 01:09:41,759
parents that vote

1829
01:09:44,870 --> 01:09:43,440
you know and and i don't know there's

1830
01:09:47,110 --> 01:09:44,880
maybe there's something that restricts

1831
01:09:48,870 --> 01:09:47,120
nasa from being able to just make

1832
01:09:50,390 --> 01:09:48,880
commercials but

1833
01:09:52,630 --> 01:09:50,400
i think you need to get creative and

1834
01:09:54,870 --> 01:09:52,640
find a way around that because i think

1835
01:09:57,750 --> 01:09:54,880
the biggest problem is really exciting

1836
01:09:59,350 --> 01:09:57,760
the adult public and letting them know

1837
01:10:01,110 --> 01:09:59,360
what nasa is doing and what they're

1838
01:10:02,310 --> 01:10:01,120

doing for their kids what you know the

1839
01:10:07,750 --> 01:10:02,320
technologies that they're really

1840
01:10:11,990 --> 01:10:09,910
well yes you're correct there are things

1841
01:10:14,070 --> 01:10:12,000
that prevent us from doing exactly what

1842
01:10:16,470 --> 01:10:14,080
the military does there but

1843
01:10:18,149 --> 01:10:16,480
uh but the truth is we're we're creative

1844
01:10:20,070 --> 01:10:18,159
and getting more creative all the time

1845
01:10:21,990 --> 01:10:20,080
in our public affairs world even david

1846
01:10:23,110 --> 01:10:22,000
could probably even answer this but

1847
01:10:25,270 --> 01:10:23,120
you know you're

1848
01:10:27,910 --> 01:10:25,280
you start to see nasa popping up in in

1849
01:10:29,910 --> 01:10:27,920
pop culture references a lot of places

1850
01:10:31,990 --> 01:10:29,920
tv shows things like that that is

1851
01:10:34,790 --> 01:10:32,000
concert yeah that's that's not all an

1852
01:10:36,149 --> 01:10:34,800
accident so we do we do what we can to

1853
01:10:38,709 --> 01:10:36,159
to get things out there you're

1854
01:10:41,030 --> 01:10:38,719
absolutely right though that

1855
01:10:41,910 --> 01:10:41,040
part of the challenge i hope we all take

1856
01:10:49,910 --> 01:10:41,920
on

1857
01:10:51,830 --> 01:10:49,920
great supporters of nasa and there are a

1858
01:10:53,350 --> 01:10:51,840
lot i mean it's a fairly consistent when

1859
01:10:55,990 --> 01:10:53,360
we do polls and things it's fairly

1860
01:10:58,470 --> 01:10:56,000
consistent you know 60 between you know

1861
01:11:00,149 --> 01:10:58,480
50 and 50 and 70 percent of the country

1862
01:11:01,830 --> 01:11:00,159
support us all the time so that's great

1863
01:11:03,590 --> 01:11:01,840

and nasa has great brand recognition

1864
01:11:05,430 --> 01:11:03,600
around the world so we're really

1865
01:11:08,310 --> 01:11:05,440
fortunate in that way but you're right

1866
01:11:10,390 --> 01:11:08,320
we need to unleash an even broader base

1867
01:11:11,669 --> 01:11:10,400
of support one way we can do that is by

1868
01:11:14,550 --> 01:11:11,679
having

1869
01:11:16,950 --> 01:11:14,560
creative programs to engage people up in

1870
01:11:18,790 --> 01:11:16,960
new ways and i think for example the

1871
01:11:21,189 --> 01:11:18,800
commercial approach to bringing crew and

1872
01:11:23,030 --> 01:11:21,199
cargo to low earth orbit are gonna is

1873
01:11:24,229 --> 01:11:23,040
gonna open up space for people to

1874
01:11:25,590 --> 01:11:24,239
experience

1875
01:11:27,350 --> 01:11:25,600
ultimately it's to take a little while

1876
01:11:28,870 --> 01:11:27,360
for us to get there but for more people

1877
01:11:30,550 --> 01:11:28,880
to experience than i've ever experienced

1878
01:11:32,390 --> 01:11:30,560
it before and in my mind that'll be some

1879
01:11:34,229 --> 01:11:32,400
of the best advertising we can get to

1880
01:11:35,590 --> 01:11:34,239
have more people actually experience

1881
01:11:37,830 --> 01:11:35,600
going to space

1882
01:11:40,550 --> 01:11:37,840
i i'd like to add one thing you

1883
01:11:42,470 --> 01:11:40,560
mentioned preaching to the choir and

1884
01:11:44,149 --> 01:11:42,480
i actually want to ask for the choir's

1885
01:11:46,310 --> 01:11:44,159
help i mean the

1886
01:11:48,070 --> 01:11:46,320
more loudly you sing the more people

1887
01:11:51,350 --> 01:11:48,080
passing by the church might poke their

1888
01:11:52,709 --> 01:11:51,360

head in and see what's going on

1889
01:11:58,550 --> 01:11:52,719
the

1890
01:12:00,870 --> 01:11:58,560
believe that

1891
01:12:04,070 --> 01:12:00,880
and feel it i mean i think we really

1892
01:12:07,430 --> 01:12:04,080
feel it otherwise we wouldn't be here so

1893
01:12:10,390 --> 01:12:07,440
uh ideas that you have and conversations

1894
01:12:13,990 --> 01:12:10,400
you engage in to um

1895
01:12:15,830 --> 01:12:14,000
help uh get that magic out because i do

1896
01:12:18,550 --> 01:12:15,840
think it's contagious would be helpful

1897
01:12:21,669 --> 01:12:20,070
i think one of the other things we need

1898
01:12:23,270 --> 01:12:21,679
to do is look at non-traditional

1899
01:12:24,390 --> 01:12:23,280
partners

1900
01:12:25,910 --> 01:12:24,400
last year during the summer of

1901
01:12:28,550 --> 01:12:25,920
innovation program

1902
01:12:29,470 --> 01:12:28,560
we did a psa with mary j blige you know

1903
01:12:32,070 --> 01:12:29,480
the

1904
01:12:33,590 --> 01:12:32,080
multi-platinum you know music recording

1905
01:12:36,310 --> 01:12:33,600
artist in r b

1906
01:12:39,030 --> 01:12:36,320
and she supports a school in new york

1907
01:12:40,870 --> 01:12:39,040
the women's academy of excellence and so

1908
01:12:42,149 --> 01:12:40,880
she's giving scholarships to these

1909
01:12:44,550 --> 01:12:42,159
students

1910
01:12:46,870 --> 01:12:44,560
and in new york city a lot of these kids

1911
01:12:49,590 --> 01:12:46,880
are you know single parents and don't

1912
01:12:51,990 --> 01:12:49,600
have a lot of resources but just this

1913
01:12:54,310 --> 01:12:52,000

relationship with mary j blige and her

1914
01:12:56,149 --> 01:12:54,320
foundation for advancing women now

1915
01:12:57,910 --> 01:12:56,159
gets it out to a demographic that

1916
01:13:00,390 --> 01:12:57,920
usually doesn't even know what we do at

1917
01:13:03,510 --> 01:13:00,400
nasa and so i think more strategic

1918
01:13:04,390 --> 01:13:03,520
partners that we don't usually see or or

1919
01:13:06,470 --> 01:13:04,400
work with

1920
01:13:09,590 --> 01:13:06,480
is really important to ensure that this

1921
01:13:12,070 --> 01:13:09,600
message goes out donovan mcnabb we had a

1922
01:13:14,149 --> 01:13:12,080
we had kids in his football camp get

1923
01:13:15,430 --> 01:13:14,159
taught by a nasa physicist the physics

1924
01:13:16,709 --> 01:13:15,440
of football

1925
01:13:17,990 --> 01:13:16,719
so we were telling them if you

1926
01:13:19,510 --> 01:13:18,000
understand physics you'll be a better

1927
01:13:21,750 --> 01:13:19,520
ballplayer you might get a scholarship

1928
01:13:23,110 --> 01:13:21,760
or might go on but here is a group of

1929
01:13:26,070 --> 01:13:23,120
students that would never think of

1930
01:13:27,990 --> 01:13:26,080
physics associated with football and so

1931
01:13:29,990 --> 01:13:28,000
again reaching out to

1932
01:13:31,110 --> 01:13:30,000
groups that would not traditionally be

1933
01:13:33,430 --> 01:13:31,120
part of

1934
01:13:35,510 --> 01:13:33,440
the mainstream and then because that

1935
01:13:37,669 --> 01:13:35,520
gets replicated replicated replicated

1936
01:13:39,669 --> 01:13:37,679
and it goes out and then using social

1937
01:13:41,830 --> 01:13:39,679
media also it's a big big area to get

1938
01:13:43,830 --> 01:13:41,840

that message out too but please send us

1939
01:13:45,990 --> 01:13:43,840
your ideas

1940
01:13:48,229 --> 01:13:46,000
yeah this is a two-way conversation it's

1941
01:13:50,070 --> 01:13:48,239
not just us knowing the best things to

1942
01:13:52,470 --> 01:13:50,080
do up here we need we need the support

1943
01:13:54,709 --> 01:13:52,480
from you guys out there also

1944
01:13:57,350 --> 01:13:54,719
that's why we're here

1945
01:13:59,189 --> 01:13:57,360
uh okay uh sir

1946
01:14:01,189 --> 01:13:59,199
i'm dick henry i'm director of maryland

1947
01:14:02,550 --> 01:14:01,199
space grant consortium and i'm a

1948
01:14:04,790 --> 01:14:02,560
professor at the johns hopkins

1949
01:14:07,590 --> 01:14:04,800
university in baltimore and i have a

1950
01:14:08,709 --> 01:14:07,600
question from mr leland melvin

1951
01:14:10,950 --> 01:14:08,719
we're all

1952
01:14:13,030 --> 01:14:10,960
attempting to inspire the young people

1953
01:14:15,189 --> 01:14:13,040
and the national space grant program

1954
01:14:17,350 --> 01:14:15,199
allows nasa to have a footprint not just

1955
01:14:19,510 --> 01:14:17,360
in states such as as maryland where

1956
01:14:21,430 --> 01:14:19,520
there's a nasa center but in every

1957
01:14:23,830 --> 01:14:21,440
single state of the union and i'm

1958
01:14:25,270 --> 01:14:23,840
wondering what your vision is mr melvin

1959
01:14:26,390 --> 01:14:25,280
for the future of your space grant

1960
01:14:27,990 --> 01:14:26,400
program

1961
01:14:29,510 --> 01:14:28,000
it's a very good question we just went

1962
01:14:31,990 --> 01:14:29,520
through um

1963
01:14:34,550 --> 01:14:32,000

a redesign of nasa education and we are

1964
01:14:36,470 --> 01:14:34,560
we're meeting actually

1965
01:14:38,550 --> 01:14:36,480
september the 9th with all my ed

1966
01:14:41,189 --> 01:14:38,560
directors to start shaping where we're

1967
01:14:42,950 --> 01:14:41,199
going to go with our with our new vision

1968
01:14:44,709 --> 01:14:42,960
for nasa education

1969
01:14:46,149 --> 01:14:44,719
so i'll have to get back to you

1970
01:14:47,830 --> 01:14:46,159
september 9th we're really really

1971
01:14:49,910 --> 01:14:47,840
looking at how do we give kids more

1972
01:14:51,510 --> 01:14:49,920
experiential

1973
01:14:53,830 --> 01:14:51,520
moments to get that defining moment in

1974
01:14:55,590 --> 01:14:53,840
their lives also with middle school

1975
01:14:57,510 --> 01:14:55,600
teachers that's another area that we're

1976
01:14:59,189 --> 01:14:57,520
going to try to increase this pipeline

1977
01:15:01,270 --> 01:14:59,199
and give you know some of the higher ed

1978
01:15:02,470 --> 01:15:01,280
kids you know these these experiences

1979
01:15:03,750 --> 01:15:02,480
cubesats some of the things that you're

1980
01:15:05,590 --> 01:15:03,760
doing right now all the things you're

1981
01:15:08,149 --> 01:15:05,600
doing right now but how do we take it to

1982
01:15:10,310 --> 01:15:08,159
scale even more with better strategic

1983
01:15:11,669 --> 01:15:10,320
partners to get even more reach and more

1984
01:15:13,430 --> 01:15:11,679
breadth so

1985
01:15:15,430 --> 01:15:13,440
it's it's coming we're going to be

1986
01:15:17,750 --> 01:15:15,440
talking to you guys a lot diane detroit

1987
01:15:19,430 --> 01:15:17,760
who is our our lead for space grant

1988
01:15:21,350 --> 01:15:19,440

we're working together to try to see how

1989
01:15:23,030 --> 01:15:21,360
we can use the dollars to be more

1990
01:15:26,070 --> 01:15:23,040
effective at where we're going with our

1991
01:15:30,149 --> 01:15:27,910
thank you i see we've gotten a couple of

1992
01:15:33,830 --> 01:15:30,159
cards handed up from our followers on

1993
01:15:37,270 --> 01:15:35,750
would any of our panelists like to take

1994
01:15:40,229 --> 01:15:37,280
a question

1995
01:15:41,750 --> 01:15:40,239
uh sure i'll i'll uh take one that came

1996
01:15:44,390 --> 01:15:41,760
in that asks what international

1997
01:15:47,669 --> 01:15:44,400
partnerships are currently available and

1998
01:15:52,790 --> 01:15:47,679
how can these benefit the u.s economy

1999
01:15:58,950 --> 01:15:56,070
from argentina to japan to throughout

2000
01:16:01,189 --> 01:15:58,960
europe to brazil i mean there are

2001
01:16:04,630 --> 01:16:01,199
sensors instruments on various

2002
01:16:07,350 --> 01:16:04,640
spacecraft some of our loftier ambitions

2003
01:16:10,229 --> 01:16:07,360
going deeper into the solar system

2004
01:16:12,550 --> 01:16:10,239
looking out far into the universe have

2005
01:16:16,470 --> 01:16:12,560
strong partnerships in particular with

2006
01:16:19,430 --> 01:16:16,480
east of the european space agency

2007
01:16:21,350 --> 01:16:19,440
and i see more in the future we cannot

2008
01:16:23,830 --> 01:16:21,360
do this alone

2009
01:16:25,750 --> 01:16:23,840
well we can do a lot of it alone but we

2010
01:16:28,470 --> 01:16:25,760
can't do as much as we should be doing

2011
01:16:30,950 --> 01:16:28,480
alone these partnerships allow all

2012
01:16:33,350 --> 01:16:30,960
nations involved to realize things that

2013
01:16:35,110 --> 01:16:33,360

are are greater than they could realize

2014
01:16:37,030 --> 01:16:35,120
individually so

2015
01:16:39,350 --> 01:16:37,040
certainly there are many existing

2016
01:16:41,270 --> 01:16:39,360
partnerships i look forward to many

2017
01:16:44,790 --> 01:16:41,280
future partnerships in fact it's part of

2018
01:16:48,470 --> 01:16:46,790
and as far as how these can benefit the

2019
01:16:51,510 --> 01:16:48,480
u.s economy

2020
01:16:53,510 --> 01:16:51,520
it all ties into what what bobby was

2021
01:16:56,470 --> 01:16:53,520
talking about in investments in

2022
01:16:58,630 --> 01:16:56,480
innovation reducing uh

2023
01:17:02,870 --> 01:16:58,640
significant economic benefits the

2024
01:17:04,229 --> 01:17:02,880
farther we reach the more we pursue

2025
01:17:06,390 --> 01:17:04,239
the more we can

2026
01:17:09,110 --> 01:17:06,400
learn from and cost share with our

2027
01:17:10,630 --> 01:17:09,120
partners the more benefit we can realize

2028
01:17:12,630 --> 01:17:10,640
in our own economy through new

2029
01:17:15,030 --> 01:17:12,640
technologies through capabilities that

2030
01:17:17,510 --> 01:17:15,040
we otherwise would not have developed on

2031
01:17:19,510 --> 01:17:17,520
our own through

2032
01:17:21,910 --> 01:17:19,520
i would argue that

2033
01:17:24,790 --> 01:17:21,920
missions that go farther look deeper can

2034
01:17:26,630 --> 01:17:24,800
be more inspiring to the young people

2035
01:17:28,950 --> 01:17:26,640
who will benefit our economy through

2036
01:17:31,189 --> 01:17:28,960
their contributions down the road so

2037
01:17:32,390 --> 01:17:31,199
there are many opportunities and many

2038
01:17:34,709 --> 01:17:32,400

benefits

2039
01:17:36,070 --> 01:17:34,719
can i just add that you know today we

2040
01:17:37,189 --> 01:17:36,080
have an extraordinary international

2041
01:17:39,030 --> 01:17:37,199
partnership in space in the

2042
01:17:41,669 --> 01:17:39,040
international space station

2043
01:17:43,030 --> 01:17:41,679
um six agencies working together

2044
01:17:46,390 --> 01:17:43,040
and

2045
01:17:47,750 --> 01:17:46,400
thinking about the future of human

2046
01:17:49,110 --> 01:17:47,760
exploration we have a group called the

2047
01:17:51,910 --> 01:17:49,120
international space exploration

2048
01:17:54,870 --> 01:17:51,920
coordination group it's in in about

2049
01:17:56,470 --> 01:17:54,880
another couple of months i would say

2050
01:17:58,310 --> 01:17:56,480
you will see come out the first

2051
01:18:01,510 --> 01:17:58,320
international roadmap for for human

2052
01:18:03,350 --> 01:18:01,520
space exploration that is 14 space

2053
01:18:05,910 --> 01:18:03,360
agencies coming together

2054
01:18:07,830 --> 01:18:05,920
from all over the world to work together

2055
01:18:09,270 --> 01:18:07,840
to think about what are the destinations

2056
01:18:10,870 --> 01:18:09,280
and the pathways we want to think about

2057
01:18:12,310 --> 01:18:10,880
for future human space flight and more

2058
01:18:14,470 --> 01:18:12,320
importantly then what does that drive us

2059
01:18:16,790 --> 01:18:14,480
to today to be thinking about the things

2060
01:18:18,709 --> 01:18:16,800
we need to be collaborating on so we are

2061
01:18:21,030 --> 01:18:18,719
literally laying the foundation for

2062
01:18:23,350 --> 01:18:21,040
extending all of this success we've had

2063
01:18:25,189 --> 01:18:23,360

internationally to the future

2064
01:18:28,310 --> 01:18:25,199
um can i answer one quick one from

2065
01:18:30,470 --> 01:18:28,320
twitter so aaron from twitter asks nasa

2066
01:18:32,229 --> 01:18:30,480
i hope to be a geologist on your first

2067
01:18:34,470 --> 01:18:32,239
human mission to mars how can i make

2068
01:18:37,189 --> 01:18:34,480
this a reality erin you're going to have

2069
01:18:39,350 --> 01:18:37,199
to throw me out of the way first

2070
01:18:41,430 --> 01:18:39,360
um no i'm kidding i would be throwing up

2071
01:18:42,950 --> 01:18:41,440
the entire time uh

2072
01:18:45,110 --> 01:18:42,960
that that's a great question and of

2073
01:18:48,310 --> 01:18:45,120
course i think what motivates a lot of

2074
01:18:50,149 --> 01:18:48,320
us is to is to think about being that um

2075
01:18:51,990 --> 01:18:50,159
about actually getting to experience

2076
01:18:54,149 --> 01:18:52,000
that space flight and actually getting

2077
01:18:55,990 --> 01:18:54,159
to be the person that it

2078
01:18:57,910 --> 01:18:56,000
does set foot on mars so what i would

2079
01:19:00,790 --> 01:18:57,920
say is uh

2080
01:19:03,430 --> 01:19:00,800
keep pursuing your scientific work and i

2081
01:19:05,030 --> 01:19:03,440
love the concept of a scientist being

2082
01:19:06,390 --> 01:19:05,040
among the first crew that goes to mars

2083
01:19:07,510 --> 01:19:06,400
we're absolutely going to need that to

2084
01:19:09,750 --> 01:19:07,520
be the case so we're going to need a

2085
01:19:11,110 --> 01:19:09,760
geologist aaron so keep keep studying

2086
01:19:12,709 --> 01:19:11,120
your geology make sure you throw some

2087
01:19:14,870 --> 01:19:12,719
biology in there because we're going to

2088
01:19:16,709 --> 01:19:14,880

be looking for life when we get there

2089
01:19:18,390 --> 01:19:16,719
and then i wanted to ask leland to say

2090
01:19:19,669 --> 01:19:18,400
something about what else this person

2091
01:19:22,229 --> 01:19:19,679
should do if they want to think about

2092
01:19:26,390 --> 01:19:22,239
becoming an astronaut

2093
01:19:30,149 --> 01:19:29,270
study hard um you know when i i had

2094
01:19:32,310 --> 01:19:30,159
never thought about becoming an

2095
01:19:34,310 --> 01:19:32,320
astronaut and i was working at nasa

2096
01:19:35,990 --> 01:19:34,320
langley for 10 years when a buddy of

2097
01:19:37,750 --> 01:19:36,000
mine handed me an application and said

2098
01:19:38,630 --> 01:19:37,760
hey you'd be a great astronaut

2099
01:19:41,910 --> 01:19:38,640
and i

2100
01:19:43,830 --> 01:19:41,920
talking about i never even imagined

2101
01:19:45,430 --> 01:19:43,840
never thought of it until my friend

2102
01:19:47,510 --> 01:19:45,440
charlie camarda

2103
01:19:48,870 --> 01:19:47,520
who applied and got in and then i said

2104
01:19:50,709 --> 01:19:48,880
to myself well if they're not letting

2105
01:19:53,510 --> 01:19:50,719
knuckleheads like that in

2106
01:19:55,270 --> 01:19:53,520
maybe i have an opportunity again but um

2107
01:19:57,669 --> 01:19:55,280
you know it's really about

2108
01:19:59,750 --> 01:19:57,679
doing the best that you can in the field

2109
01:20:01,990 --> 01:19:59,760
that you're in you know people always

2110
01:20:03,430 --> 01:20:02,000
say do i have to get a degree in

2111
01:20:04,390 --> 01:20:03,440
material science or mechanical

2112
01:20:06,790 --> 01:20:04,400
engineering

2113
01:20:08,870 --> 01:20:06,800

it's just choosing what you love

2114
01:20:10,790 --> 01:20:08,880
and doing the best that you can and

2115
01:20:13,270 --> 01:20:10,800
being inspired and motivated and then

2116
01:20:15,270 --> 01:20:13,280
because as you fly in space you're not

2117
01:20:16,550 --> 01:20:15,280
you're not really an expert in one thing

2118
01:20:18,310 --> 01:20:16,560
you're a generalist because if the

2119
01:20:20,149 --> 01:20:18,320
toilet breaks you've got to fix it you

2120
01:20:21,590 --> 01:20:20,159
know if the solar panels break you got

2121
01:20:23,750 --> 01:20:21,600
to go into a spacewalk and fix it so

2122
01:20:26,790 --> 01:20:23,760
you're not you're not a

2123
01:20:28,790 --> 01:20:26,800
a focused specialized person you are a

2124
01:20:30,870 --> 01:20:28,800
generalist that your engineering your

2125
01:20:33,189 --> 01:20:30,880
science classes have taught you

2126
01:20:35,669 --> 01:20:33,199
how to learn how to grow how to how to

2127
01:20:37,750 --> 01:20:35,679
how to think as a as a scientist you

2128
01:20:39,350 --> 01:20:37,760
probably want to get a phd most of the

2129
01:20:41,510 --> 01:20:39,360
scientists in the core are

2130
01:20:43,110 --> 01:20:41,520
um are phd holding

2131
01:20:45,350 --> 01:20:43,120
and uh

2132
01:20:46,790 --> 01:20:45,360
and then come work with us at nasa so

2133
01:20:51,270 --> 01:20:46,800
you heard it from leland even

2134
01:20:55,189 --> 01:20:53,270
that was charlie

2135
01:20:56,790 --> 01:20:55,199
okay we'll take another question from

2136
01:20:58,070 --> 01:20:56,800
here in the audience here in the back

2137
01:21:00,310 --> 01:20:58,080
pam

2138
01:21:02,550 --> 01:21:00,320

thank you good morning um first things

2139
01:21:04,310 --> 01:21:02,560
first uh thank you so much for being

2140
01:21:05,830 --> 01:21:04,320
here today and giving us a chance of

2141
01:21:07,590 --> 01:21:05,840
talking to you

2142
01:21:09,669 --> 01:21:07,600
uh it's wonderful

2143
01:21:12,550 --> 01:21:09,679
um i'm a graduate student here at

2144
01:21:14,229 --> 01:21:12,560
maryland i study aerospace engineering

2145
01:21:15,590 --> 01:21:14,239
and

2146
01:21:16,790 --> 01:21:15,600
we had this

2147
01:21:19,030 --> 01:21:16,800
course

2148
01:21:20,229 --> 01:21:19,040
last semester with professor hubbard

2149
01:21:21,350 --> 01:21:20,239
from

2150
01:21:23,270 --> 01:21:21,360
nia

2151
01:21:25,669 --> 01:21:23,280
and we were discussing many of the

2152
01:21:26,830 --> 01:21:25,679
challenges that nasa has

2153
01:21:30,470 --> 01:21:26,840
in terms of

2154
01:21:33,030 --> 01:21:30,480
education exploration

2155
01:21:35,910 --> 01:21:33,040
manned versus unmanned robotics

2156
01:21:38,390 --> 01:21:35,920
exploration and and we were

2157
01:21:40,149 --> 01:21:38,400
you know rounding up all these issues

2158
01:21:41,510 --> 01:21:40,159
but in the end

2159
01:21:44,870 --> 01:21:41,520
it seemed

2160
01:21:48,070 --> 01:21:44,880
that one of the major problems was to

2161
01:21:49,910 --> 01:21:48,080
sustain or increase nasa's budget

2162
01:21:50,950 --> 01:21:49,920
authorized by the government

2163
01:21:58,310 --> 01:21:50,960

so

2164
01:22:02,310 --> 01:21:59,990
approach the problem

2165
01:22:03,750 --> 01:22:02,320
from the standpoint of motivating the

2166
01:22:05,270 --> 01:22:03,760
american public

2167
01:22:09,350 --> 01:22:05,280
to

2168
01:22:11,750 --> 01:22:09,360
motivate the congress at the point of

2169
01:22:14,229 --> 01:22:11,760
authorizing these budgets

2170
01:22:16,870 --> 01:22:14,239
so that people will say oh yes nasa does

2171
01:22:20,629 --> 01:22:16,880
this for us nasa does that for us so

2172
01:22:23,510 --> 01:22:21,750
what

2173
01:22:26,390 --> 01:22:23,520
would be needed for nasa to be more

2174
01:22:28,149 --> 01:22:26,400
present in the civil life

2175
01:22:30,470 --> 01:22:28,159
just like you did with the chilean

2176
01:22:31,510 --> 01:22:30,480
miners

2177
01:22:34,149 --> 01:22:31,520
so

2178
01:22:36,149 --> 01:22:34,159
you know nasa has many

2179
01:22:40,070 --> 01:22:36,159
technological advances that can help

2180
01:22:41,830 --> 01:22:40,080
humanity at this point droughts famine

2181
01:22:45,350 --> 01:22:41,840
things that will definitely make a big

2182
01:22:47,510 --> 01:22:45,360
big publicity and will open

2183
01:22:49,510 --> 01:22:47,520
the general population's eyes to how

2184
01:22:55,270 --> 01:22:49,520
great nasa is because i do think that

2185
01:22:58,790 --> 01:22:56,390
well

2186
01:23:02,229 --> 01:22:58,800
first i'd like to say i hope you run for

2187
01:23:08,070 --> 01:23:05,430
secondly in our earth science division

2188
01:23:10,709 --> 01:23:08,080

we do have an applications program that

2189
01:23:13,750 --> 01:23:10,719
that really is highlighted at how we can

2190
01:23:16,229 --> 01:23:13,760
use the space based observations to

2191
01:23:18,470 --> 01:23:16,239
serve society directly enable decision

2192
01:23:20,390 --> 01:23:18,480
support

2193
01:23:21,350 --> 01:23:20,400
secondly i think

2194
01:23:23,270 --> 01:23:21,360
uh

2195
01:23:25,590 --> 01:23:23,280
you know one reason we wanted to have

2196
01:23:28,470 --> 01:23:25,600
this forum was to

2197
01:23:30,629 --> 01:23:28,480
hear this kind of feedback invite ideas

2198
01:23:33,830 --> 01:23:30,639
from you because we we don't have all

2199
01:23:36,950 --> 01:23:33,840
the answers but i i believe our content

2200
01:23:37,910 --> 01:23:36,960
is incredibly inspirational i believe

2201
01:23:45,510 --> 01:23:37,920
that

2202
01:23:47,189 --> 01:23:45,520
looked at the old footage even if it was

2203
01:23:49,510 --> 01:23:47,199
before you were born of the lunar

2204
01:23:52,229 --> 01:23:49,520
landings that gets goosebumps is stirred

2205
01:23:54,629 --> 01:23:52,239
by it when i watched the satellite last

2206
01:23:57,189 --> 01:23:54,639
friday launched toward jupiter i mean it

2207
01:23:59,430 --> 01:23:57,199
was it was palpable the the people in

2208
01:24:02,149 --> 01:23:59,440
the the public that were watching this

2209
01:24:05,510 --> 01:24:02,159
rocket carry this thing to to great new

2210
01:24:08,390 --> 01:24:05,520
destinations we're energized and somehow

2211
01:24:11,590 --> 01:24:08,400
we're we're trying to bring that

2212
01:24:13,830 --> 01:24:11,600
appreciation the inspirational aspect

2213
01:24:16,709 --> 01:24:13,840

and the service to society

2214
01:24:19,430 --> 01:24:16,719
outward and this conversation is one

2215
01:24:21,110 --> 01:24:19,440
step in that process our outreach

2216
01:24:24,070 --> 01:24:21,120
efforts are you know they're working

2217
01:24:25,510 --> 01:24:24,080
diligently but we are always open to new

2218
01:24:28,229 --> 01:24:25,520
and uh

2219
01:24:30,790 --> 01:24:28,239
innovative and exciting ideas

2220
01:24:35,270 --> 01:24:30,800
right if i could just uh add to that a

2221
01:24:38,070 --> 01:24:35,280
little bit i think your question is um

2222
01:24:39,590 --> 01:24:38,080
is very wise um

2223
01:24:41,350 --> 01:24:39,600
coming from an aerospace engineer i'm

2224
01:24:43,910 --> 01:24:41,360
proud

2225
01:24:46,870 --> 01:24:43,920
uh but i should say that uh you know so

2226
01:24:49,270 --> 01:24:46,880
i'm also a university professor i'm a

2227
01:24:51,430 --> 01:24:49,280
guy who's been affiliated with nasa for

2228
01:24:53,430 --> 01:24:51,440
most of my career but before

2229
01:24:57,510 --> 01:24:53,440
i was in this position

2230
01:25:03,030 --> 01:25:00,470
now that i'm at nasa i see the content i

2231
01:25:06,070 --> 01:25:03,040
see it every day and walid has described

2232
01:25:08,870 --> 01:25:06,080
it well it's it's rich it's uh it's

2233
01:25:12,470 --> 01:25:08,880
amazing the way nasa impacts the nation

2234
01:25:15,270 --> 01:25:12,480
in so many ways uh economically in in

2235
01:25:16,229 --> 01:25:15,280
disaster relief across the world

2236
01:25:17,669 --> 01:25:16,239
uh

2237
01:25:19,669 --> 01:25:17,679
you know weather

2238
01:25:20,950 --> 01:25:19,679

um you know monitoring of the earth i

2239
01:25:24,310 --> 01:25:20,960
mean it's just

2240
01:25:26,870 --> 01:25:24,320
it's unbelievable actually uh but

2241
01:25:29,189 --> 01:25:26,880
i can tell you that as someone

2242
01:25:31,990 --> 01:25:29,199
in the choir but previously in the

2243
01:25:33,590 --> 01:25:32,000
public like yourself

2244
01:25:37,510 --> 01:25:33,600
i didn't know

2245
01:25:38,310 --> 01:25:37,520
nasa was doing and so one of the things

2246
01:25:40,790 --> 01:25:38,320
that

2247
01:25:42,870 --> 01:25:40,800
i've been doing as chief technologist uh

2248
01:25:45,910 --> 01:25:42,880
as we've been ramping up

2249
01:25:49,110 --> 01:25:45,920
our communications of the spin-off

2250
01:25:51,750 --> 01:25:49,120
program nasa has a fantastic spin-offs

2251
01:25:54,070 --> 01:25:51,760
program the spinoffs program is where we

2252
01:25:55,669 --> 01:25:54,080
take the technological investments we're

2253
01:25:57,350 --> 01:25:55,679
making for our future missions and we

2254
01:25:59,350 --> 01:25:57,360
spin those off

2255
01:26:01,910 --> 01:25:59,360
into commercial products or into

2256
01:26:04,149 --> 01:26:01,920
services that help the country

2257
01:26:05,830 --> 01:26:04,159
and we're publicizing that much more now

2258
01:26:09,750 --> 01:26:05,840
um just in this past year there were a

2259
01:26:11,030 --> 01:26:09,760
whole series of magazine articles

2260
01:26:13,189 --> 01:26:11,040
that came out about some of the

2261
01:26:15,910 --> 01:26:13,199
spin-offs we're highlighting them on our

2262
01:26:19,510 --> 01:26:15,920
website more there's always been a

2263
01:26:21,189 --> 01:26:19,520

spin-offs book and a spinoffs website

2264
01:26:24,149 --> 01:26:21,199
and this is just a start

2265
01:26:25,510 --> 01:26:24,159
you know we we haven't made a dent in

2266
01:26:26,790 --> 01:26:25,520
where we need to be

2267
01:26:29,350 --> 01:26:26,800
with this

2268
01:26:31,750 --> 01:26:29,360
but what i think you'll see

2269
01:26:34,149 --> 01:26:31,760
this year and in these next few years is

2270
01:26:35,590 --> 01:26:34,159
a much greater emphasis on societal

2271
01:26:41,030 --> 01:26:35,600
benefit

2272
01:26:43,350 --> 01:26:41,040
to the general public because nasa does

2273
01:26:44,149 --> 01:26:43,360
have a great story to tell

2274
01:26:48,390 --> 01:26:44,159
so

2275
01:26:50,709 --> 01:26:48,400
perspective on this is we are living in

2276
01:26:52,470 --> 01:26:50,719
a time in our country where

2277
01:26:55,350 --> 01:26:52,480
thoughts of dramatically increased

2278
01:26:57,430 --> 01:26:55,360
budgets are probably not realistic right

2279
01:26:59,430 --> 01:26:57,440
i mean we've all just watched

2280
01:27:01,510 --> 01:26:59,440
the great debate about the debt ceiling

2281
01:27:04,629 --> 01:27:01,520
and linking that to reducing federal

2282
01:27:06,390 --> 01:27:04,639
spending so i think part of our job and

2283
01:27:08,550 --> 01:27:06,400
the way we address this

2284
01:27:11,669 --> 01:27:08,560
how do we is is how do we do more with

2285
01:27:13,669 --> 01:27:11,679
what we have how do we bring other kinds

2286
01:27:16,550 --> 01:27:13,679
of support to the table

2287
01:27:18,390 --> 01:27:16,560
beyond just federal dollars

2288
01:27:19,830 --> 01:27:18,400

and we have several ways that we're

2289
01:27:21,510 --> 01:27:19,840
doing that that gets back to the

2290
01:27:23,830 --> 01:27:21,520
innovative partnerships that leland was

2291
01:27:25,590 --> 01:27:23,840
talking about how do we leverage

2292
01:27:28,390 --> 01:27:25,600
investments that are being made by

2293
01:27:30,790 --> 01:27:28,400
others to advance the cause of space

2294
01:27:33,510 --> 01:27:30,800
exploration i think that is something

2295
01:27:35,750 --> 01:27:33,520
that is really a great opportunity for

2296
01:27:37,510 --> 01:27:35,760
us through our commercial programs we we

2297
01:27:39,430 --> 01:27:37,520
don't just give a government contract

2298
01:27:40,950 --> 01:27:39,440
the contractors bring their own

2299
01:27:42,229 --> 01:27:40,960
investment to the table we've all got

2300
01:27:44,629 --> 01:27:42,239
skin in the game and making that

2301
01:27:46,470 --> 01:27:44,639
successful that expands the pie we're

2302
01:27:49,590 --> 01:27:46,480
working we're partnered with google on

2303
01:27:51,750 --> 01:27:49,600
the google lunar x prize where privately

2304
01:27:53,830 --> 01:27:51,760
funded folks are off trying to build

2305
01:27:56,310 --> 01:27:53,840
missions to go explore the moon what

2306
01:27:58,310 --> 01:27:56,320
could be better that's not nasa money if

2307
01:28:00,709 --> 01:27:58,320
they make it and are successful we've

2308
01:28:02,310 --> 01:28:00,719
incentivized with very tiny amounts of

2309
01:28:04,550 --> 01:28:02,320
investment if they make it there's a

2310
01:28:06,070 --> 01:28:04,560
prize in it for them from the nasa side

2311
01:28:07,430 --> 01:28:06,080
and from the from the google side as

2312
01:28:09,430 --> 01:28:07,440
well so

2313
01:28:11,430 --> 01:28:09,440

there's an extraordinary opportunity for

2314
01:28:12,470 --> 01:28:11,440
us i think to leverage other investments

2315
01:28:14,229 --> 01:28:12,480
that are out there as a way of

2316
01:28:16,390 --> 01:28:14,239
increasing the pie that's not just

2317
01:28:17,510 --> 01:28:16,400
increasing nasa's budget and then nasa

2318
01:28:19,270 --> 01:28:17,520
needs to look at doing things more

2319
01:28:20,790 --> 01:28:19,280
efficiently and effectively internally

2320
01:28:22,870 --> 01:28:20,800
so we can make the most of every dollar

2321
01:28:25,350 --> 01:28:22,880
that we have

2322
01:28:27,350 --> 01:28:25,360
i'd also like to point out that at 1 30

2323
01:28:29,830 --> 01:28:27,360
today there's a panel that we've got on

2324
01:28:31,110 --> 01:28:29,840
technology investments and benefits

2325
01:28:33,030 --> 01:28:31,120
transferring

2326
01:28:34,470 --> 01:28:33,040
technology to benefit our lives here i

2327
01:28:35,830 --> 01:28:34,480
hope you'll all join for that panel

2328
01:28:37,189 --> 01:28:35,840
discussion

2329
01:28:39,430 --> 01:28:37,199
sir

2330
01:28:41,270 --> 01:28:39,440
good morning i'm frank schoengert i'm

2331
01:28:42,870 --> 01:28:41,280
the director of the pacific

2332
01:28:46,870 --> 01:28:42,880
international space center for

2333
01:28:49,430 --> 01:28:46,880
exploration systems or pisces in hawaii

2334
01:28:51,750 --> 01:28:49,440
and i would like to follow up on a

2335
01:28:54,470 --> 01:28:51,760
response that laurie gave

2336
01:28:57,669 --> 01:28:54,480
to a question about

2337
01:29:00,070 --> 01:28:57,679
how we can

2338
01:29:03,189 --> 01:29:00,080

introduce the human element

2339
01:29:06,149 --> 01:29:03,199
into space exploration and thereby

2340
01:29:09,030 --> 01:29:06,159
greatly expand greatly multiply

2341
01:29:10,390 --> 01:29:09,040
the uh the spin-offs uh that would come

2342
01:29:12,310 --> 01:29:10,400
from

2343
01:29:13,189 --> 01:29:12,320
further research into

2344
01:29:15,669 --> 01:29:13,199
life

2345
01:29:18,790 --> 01:29:15,679
support systems and so forth i couldn't

2346
01:29:22,229 --> 01:29:18,800
agree more with that response by the way

2347
01:29:28,709 --> 01:29:24,790
why we don't consider

2348
01:29:31,030 --> 01:29:28,719
uh and are not more open within nasa

2349
01:29:33,590 --> 01:29:31,040
to doing this on the moon

2350
01:29:35,830 --> 01:29:33,600
why don't we consider building

2351
01:29:37,990 --> 01:29:35,840
uh not just with nasa money but with

2352
01:29:40,149 --> 01:29:38,000
international support with

2353
01:29:42,709 --> 01:29:40,159
industry support

2354
01:29:44,870 --> 01:29:42,719
a some kind of a colony some kind of a

2355
01:29:47,350 --> 01:29:44,880
settlement that word is

2356
01:29:49,350 --> 01:29:47,360
embargoed i know

2357
01:29:52,229 --> 01:29:49,360
not anymore but what we've called a

2358
01:29:54,790 --> 01:29:52,239
research park on the moon and which we

2359
01:29:58,629 --> 01:29:54,800
have proposed and are prototyping in

2360
01:30:03,189 --> 01:30:01,110
i would like to hear a cogent argument

2361
01:30:05,189 --> 01:30:03,199
against that

2362
01:30:08,149 --> 01:30:05,199
which i really haven't heard so far and

2363
01:30:10,950 --> 01:30:08,159

and not just one that says well somebody

2364
01:30:14,390 --> 01:30:10,960
up above says we can't do this

2365
01:30:15,430 --> 01:30:14,400
this would be a way to leverage nasa's

2366
01:30:18,229 --> 01:30:15,440
uh

2367
01:30:20,950 --> 01:30:18,239
massively leverage nasa's investment

2368
01:30:24,470 --> 01:30:20,960
with countries from all around the world

2369
01:30:26,390 --> 01:30:24,480
with commerce expanding extending

2370
01:30:29,669 --> 01:30:26,400
earth's economic sphere of the moon as

2371
01:30:31,830 --> 01:30:29,679
the late john marburger said

2372
01:30:32,870 --> 01:30:31,840
what's wrong with it

2373
01:30:34,790 --> 01:30:32,880
i don't think there's anything wrong

2374
01:30:36,950 --> 01:30:34,800
with it i think that that our plan is to

2375
01:30:38,790 --> 01:30:36,960
develop the capabilities to allow us to

2376
01:30:40,709 --> 01:30:38,800
do things just like that

2377
01:30:42,470 --> 01:30:40,719
and the question in front of us is in

2378
01:30:43,990 --> 01:30:42,480
the coming decades

2379
01:30:47,030 --> 01:30:44,000
what is the order in which we will

2380
01:30:49,350 --> 01:30:47,040
undertake the exploration of various um

2381
01:30:51,030 --> 01:30:49,360
destinations and

2382
01:30:52,470 --> 01:30:51,040
we are focused at the moment on

2383
01:30:54,070 --> 01:30:52,480
developing the systems that are really

2384
01:30:55,590 --> 01:30:54,080
going to allow us to put to push the

2385
01:30:56,950 --> 01:30:55,600
envelope and one of the things that will

2386
01:30:58,310 --> 01:30:56,960
push the envelope is living for long

2387
01:31:00,950 --> 01:30:58,320
periods of time on the surface of other

2388
01:31:03,430 --> 01:31:00,960

worlds and so i definitely the moon is

2389
01:31:06,790 --> 01:31:03,440
part of our destination set no doubt

2390
01:31:07,990 --> 01:31:06,800
about it um if we said today that's the

2391
01:31:09,750 --> 01:31:08,000
that's the first thing we're going to do

2392
01:31:11,669 --> 01:31:09,760
is establish a long-term settlement

2393
01:31:13,510 --> 01:31:11,679
research park on the moon it might be

2394
01:31:17,510 --> 01:31:13,520
harder to go beyond and so i think we

2395
01:31:19,830 --> 01:31:17,520
are looking to really you know throw our

2396
01:31:21,910 --> 01:31:19,840
hats over the fence and and go far

2397
01:31:23,590 --> 01:31:21,920
beyond where we have been before

2398
01:31:25,590 --> 01:31:23,600
but in doing so we will create the

2399
01:31:28,790 --> 01:31:25,600
capabilities that will allow us to

2400
01:31:31,030 --> 01:31:28,800
partner with businesses and others to

2401
01:31:32,790 --> 01:31:31,040
think about permanent installations

2402
01:31:36,149 --> 01:31:32,800
beyond low earth orbit i think that

2403
01:31:40,229 --> 01:31:38,149
okay unfortunately we're running out of

2404
01:31:41,750 --> 01:31:40,239
time for this morning's first panel i

2405
01:31:44,229 --> 01:31:41,760
think walid had a couple of closing

2406
01:31:46,390 --> 01:31:44,239
remarks yeah i just wanted um to

2407
01:31:48,790 --> 01:31:46,400
summarize for anyone who's tweeting i

2408
01:31:52,550 --> 01:31:48,800
think this is less than 140 characters

2409
01:31:55,189 --> 01:31:52,560
um but but a couple of take-homes

2410
01:31:58,070 --> 01:31:55,199
be the inspiration we all have the power

2411
01:31:59,590 --> 01:31:58,080
to be the inspiration

2412
01:32:01,590 --> 01:31:59,600
create a movement

2413
01:32:05,350 --> 01:32:01,600

like lori said

2414
01:32:07,110 --> 01:32:05,360
invest wisely in our future

2415
01:32:09,110 --> 01:32:07,120
and if we do that

2416
01:32:11,270 --> 01:32:09,120
the dreams of today will be the

2417
01:32:14,709 --> 01:32:11,280
successes of tomorrow

2418
01:32:16,790 --> 01:32:14,719
and i invite everyone to

2419
01:32:18,870 --> 01:32:16,800
carry those thoughts with them ask

2420
01:32:21,270 --> 01:32:18,880
questions built around those thoughts to

2421
01:32:23,830 --> 01:32:21,280
the panelists throughout the day and

2422
01:32:26,550 --> 01:32:23,840
when you leave here today

2423
01:32:36,629 --> 01:32:26,560
go forward and take it with you

2424
01:32:39,990 --> 01:32:38,390
before we take a break

2425
01:32:42,550 --> 01:32:40,000
we have a very special guest with us

2426
01:32:43,669 --> 01:32:42,560
today uh we're glad she was able to make

2427
01:32:44,870 --> 01:32:43,679
it and

2428
01:32:46,629 --> 01:32:44,880
give us some

2429
01:32:47,990 --> 01:32:46,639
words and thoughts about nasa in the

2430
01:32:50,870 --> 01:32:48,000
future

2431
01:32:53,430 --> 01:32:50,880
she is a wonderful friend and supporter

2432
01:32:55,189 --> 01:32:53,440
of america's space program

2433
01:33:08,870 --> 01:32:55,199
it's my great honor to introduce

2434
01:33:12,070 --> 01:33:10,870
hello good morning and i apologize is

2435
01:33:13,990 --> 01:33:12,080
running late this morning but i

2436
01:33:16,229 --> 01:33:14,000
understand that administrator bolden was

2437
01:33:17,270 --> 01:33:16,239
here and he said that we're friends he's

2438
01:33:20,229 --> 01:33:17,280

right

2439
01:33:22,709 --> 01:33:20,239
um it is so exciting to be here and and

2440
01:33:25,990 --> 01:33:22,719
dr abdullah i'm going to leave another

2441
01:33:28,790 --> 01:33:26,000
tweet and it is this a nation is only

2442
01:33:31,270 --> 01:33:28,800
as strong as its investments in

2443
01:33:33,750 --> 01:33:31,280
technology and the future

2444
01:33:35,830 --> 01:33:33,760
and i believe that and i think that nasa

2445
01:33:38,229 --> 01:33:35,840
is at the core

2446
01:33:40,870 --> 01:33:38,239
of that investment i've had a couple of

2447
01:33:41,990 --> 01:33:40,880
experiences just in the last two weeks

2448
01:33:44,470 --> 01:33:42,000
that have

2449
01:33:45,910 --> 01:33:44,480
i thought nothing to do

2450
01:33:48,070 --> 01:33:45,920
with being here today and i'm going to

2451
01:33:50,870 --> 01:33:48,080
share them with you the first was

2452
01:33:51,990 --> 01:33:50,880
out at a home in university park not

2453
01:33:54,870 --> 01:33:52,000
very far

2454
01:33:57,030 --> 01:33:54,880
from here at college park and

2455
01:33:58,790 --> 01:33:57,040
i was there with our lieutenant governor

2456
01:34:01,270 --> 01:33:58,800
anthony brown and we were looking at

2457
01:34:02,629 --> 01:34:01,280
some investments that

2458
01:34:05,350 --> 01:34:02,639
that the state and the federal

2459
01:34:07,750 --> 01:34:05,360
government made through stimulus funding

2460
01:34:08,790 --> 01:34:07,760
to improve energy efficiency of older

2461
01:34:11,590 --> 01:34:08,800
homes

2462
01:34:13,830 --> 01:34:11,600
and there was a crew of four

2463
01:34:15,910 --> 01:34:13,840

four men working on this home to improve

2464
01:34:17,110 --> 01:34:15,920
its energy efficiency and they had this

2465
01:34:20,870 --> 01:34:17,120
little

2466
01:34:22,070 --> 01:34:20,880
handheld device it was a device that was

2467
01:34:24,070 --> 01:34:22,080
used to

2468
01:34:27,189 --> 01:34:24,080
move around the ceilings and the walls

2469
01:34:29,110 --> 01:34:27,199
to detect hot spots it's used now

2470
01:34:31,110 --> 01:34:29,120
throughout the entire

2471
01:34:34,149 --> 01:34:31,120
energy efficiency

2472
01:34:36,229 --> 01:34:34,159
industry to do that to improve to look

2473
01:34:39,830 --> 01:34:36,239
at where it is that homes

2474
01:34:43,189 --> 01:34:39,840
can possibly save on their energy costs

2475
01:34:44,870 --> 01:34:43,199
the family in that home an older family

2476
01:34:46,709 --> 01:34:44,880
had been in that home for a very long

2477
01:34:49,990 --> 01:34:46,719
time and

2478
01:34:51,990 --> 01:34:50,000
was spending a lot of money on

2479
01:34:53,430 --> 01:34:52,000
heating and cooling

2480
01:34:56,070 --> 01:34:53,440
costs in the home

2481
01:34:57,430 --> 01:34:56,080
and so they became part of this program

2482
01:34:59,750 --> 01:34:57,440
that the state is offering that's

2483
01:35:01,350 --> 01:34:59,760
supported by the federal government and

2484
01:35:03,430 --> 01:35:01,360
this crew is in there and they've been

2485
01:35:05,510 --> 01:35:03,440
in this business for about 20 years but

2486
01:35:08,950 --> 01:35:05,520
the business has only really started to

2487
01:35:10,310 --> 01:35:08,960
ramp up over these last couple of years

2488
01:35:12,550 --> 01:35:10,320

and so

2489
01:35:14,550 --> 01:35:12,560
the technician who was in the home was

2490
01:35:17,189 --> 01:35:14,560
going around the home flashing the

2491
01:35:19,750 --> 01:35:17,199
device at the ceiling and at the walls

2492
01:35:22,229 --> 01:35:19,760
and you could see on the screen

2493
01:35:24,470 --> 01:35:22,239
the hot spots as they lit up

2494
01:35:27,590 --> 01:35:24,480
on that screen to say where the

2495
01:35:29,990 --> 01:35:27,600
insulation was degraded and needed to be

2496
01:35:32,709 --> 01:35:30,000
replaced and so they were using that and

2497
01:35:34,470 --> 01:35:32,719
then were replacing the insulation and i

2498
01:35:35,830 --> 01:35:34,480
asked about the device

2499
01:35:37,830 --> 01:35:35,840
and the other people who were in the

2500
01:35:39,830 --> 01:35:37,840
room too none of us

2501
01:35:42,470 --> 01:35:39,840
maybe me only tangentially with any

2502
01:35:44,070 --> 01:35:42,480
connection whatsoever to nasa turns out

2503
01:35:47,830 --> 01:35:44,080
that the device that's used throughout

2504
01:35:50,709 --> 01:35:47,840
that uh that growing industry that green

2505
01:35:53,750 --> 01:35:50,719
economy was developed at a lab in

2506
01:35:56,229 --> 01:35:53,760
princeton in partnership with nasa and i

2507
01:35:59,430 --> 01:35:56,239
think you heard from the panelists

2508
01:36:01,510 --> 01:35:59,440
earlier that we have examples like this

2509
01:36:03,510 --> 01:36:01,520
all throughout

2510
01:36:06,149 --> 01:36:03,520
this country and around and around the

2511
01:36:09,669 --> 01:36:06,159
world and we have to tell those stories

2512
01:36:12,950 --> 01:36:09,679
now today i'm a politician but before

2513
01:36:15,270 --> 01:36:12,960

long before that i spent an amazing uh

2514
01:36:18,310 --> 01:36:15,280
six years or so with the

2515
01:36:20,790 --> 01:36:18,320
lockheed before the merger

2516
01:36:22,709 --> 01:36:20,800
so that dates me a little bit

2517
01:36:24,629 --> 01:36:22,719
at goddard space flight center working

2518
01:36:25,590 --> 01:36:24,639
on this space lab project now i was one

2519
01:36:27,830 --> 01:36:25,600
of those

2520
01:36:30,550 --> 01:36:27,840
space babies who grew up watching that

2521
01:36:32,390 --> 01:36:30,560
black and white screen in the classroom

2522
01:36:35,109 --> 01:36:32,400
and those early

2523
01:36:36,550 --> 01:36:35,119
missions and i was hooked then and my

2524
01:36:38,149 --> 01:36:36,560
experience

2525
01:36:40,550 --> 01:36:38,159
working at the goddard space flight

2526
01:36:42,790 --> 01:36:40,560
center with so many really amazing

2527
01:36:45,270 --> 01:36:42,800
talented uh people who are really

2528
01:36:48,629 --> 01:36:45,280
thinking about the future hooked me

2529
01:36:50,629 --> 01:36:48,639
forever and not because as a as a

2530
01:36:52,870 --> 01:36:50,639
long-term career and certainly not now

2531
01:36:55,669 --> 01:36:52,880
that i would end up

2532
01:36:57,910 --> 01:36:55,679
in the in the space program but because

2533
01:37:00,470 --> 01:36:57,920
it allowed me to see the tremendous

2534
01:37:04,550 --> 01:37:00,480
benefits that investments in technology

2535
01:37:07,350 --> 01:37:04,560
innovation and exploration pay off every

2536
01:37:08,709 --> 01:37:07,360
single day i had another experience just

2537
01:37:10,629 --> 01:37:08,719
two days ago

2538
01:37:12,149 --> 01:37:10,639

out in columbia maryland talking with

2539
01:37:14,109 --> 01:37:12,159
this company that

2540
01:37:16,709 --> 01:37:14,119
is an amazing bio

2541
01:37:18,550 --> 01:37:16,719
biotechnology company and they

2542
01:37:19,430 --> 01:37:18,560
they have developed over the course of

2543
01:37:21,750 --> 01:37:19,440
about

2544
01:37:23,910 --> 01:37:21,760
18 years

2545
01:37:26,709 --> 01:37:23,920
the ability to grow

2546
01:37:28,629 --> 01:37:26,719
algae so that's used in

2547
01:37:30,310 --> 01:37:28,639
in so many of the products that we use

2548
01:37:32,070 --> 01:37:30,320
that are commercially available on the

2549
01:37:35,430 --> 01:37:32,080
market that improves

2550
01:37:39,590 --> 01:37:35,440
health outcomes and they started out as

2551
01:37:42,229 --> 01:37:39,600
part of the sbir program connected with

2552
01:37:43,910 --> 01:37:42,239
goddard space flight center with nasa

2553
01:37:47,350 --> 01:37:43,920
they spun off

2554
01:37:49,830 --> 01:37:47,360
they are you know a mega million dollar

2555
01:37:52,870 --> 01:37:49,840
corporation now doing some of the most

2556
01:37:55,430 --> 01:37:52,880
amazing innovative work around their

2557
01:37:56,870 --> 01:37:55,440
beginnings their origins were in the

2558
01:37:59,510 --> 01:37:56,880
space program

2559
01:38:02,070 --> 01:37:59,520
and i think as a member of congress and

2560
01:38:05,830 --> 01:38:02,080
i heard the questions earlier our

2561
01:38:07,910 --> 01:38:05,840
challenge is to make sure that all of us

2562
01:38:09,910 --> 01:38:07,920
know that all of us know those benefits

2563
01:38:12,149 --> 01:38:09,920

all of us each of us knows

2564
01:38:13,830 --> 01:38:12,159
my experience of driving in my car and

2565
01:38:16,470 --> 01:38:13,840
unfortunately being in a horrible

2566
01:38:19,430 --> 01:38:16,480
accident having that airbag pop out onto

2567
01:38:22,229 --> 01:38:19,440
me that has you know made my uh back

2568
01:38:25,990 --> 01:38:22,239
crazy but saved my life and to know that

2569
01:38:29,189 --> 01:38:26,000
that is nasa technology and so here we

2570
01:38:31,030 --> 01:38:29,199
are in this uh unbelievable budget

2571
01:38:33,109 --> 01:38:31,040
environment where

2572
01:38:35,109 --> 01:38:33,119
rightly so the

2573
01:38:37,590 --> 01:38:35,119
the mission and the vision

2574
01:38:39,590 --> 01:38:37,600
of nasa and all who work throughout the

2575
01:38:41,910 --> 01:38:39,600
industry when i say nasa i don't just

2576
01:38:44,470 --> 01:38:41,920
mean the government agency i mean the

2577
01:38:45,830 --> 01:38:44,480
entire sector the entire sphere from

2578
01:38:47,910 --> 01:38:45,840
academia

2579
01:38:50,629 --> 01:38:47,920
to the private sector to our

2580
01:38:51,830 --> 01:38:50,639
international partners and to the agency

2581
01:38:53,109 --> 01:38:51,840
itself

2582
01:38:54,470 --> 01:38:53,119
but we're in an environment of

2583
01:38:56,790 --> 01:38:54,480
constrained

2584
01:38:58,790 --> 01:38:56,800
budgets and i know i hear all the time

2585
01:39:01,590 --> 01:38:58,800
from my colleagues and even people in

2586
01:39:04,790 --> 01:39:01,600
the community well if we need to cut

2587
01:39:07,510 --> 01:39:04,800
spending let's cut nasa well all of us

2588
01:39:09,910 --> 01:39:07,520

know and this again goes to the question

2589
01:39:13,030 --> 01:39:09,920
of the choir but all of us know that we

2590
01:39:14,950 --> 01:39:13,040
could do that 10 days in a sunday and

2591
01:39:17,590 --> 01:39:14,960
still not make a real debt in the

2592
01:39:19,910 --> 01:39:17,600
federal budget and the last thing that

2593
01:39:22,709 --> 01:39:19,920
we need to do as we're approaching this

2594
01:39:25,109 --> 01:39:22,719
new century we're a decade into that and

2595
01:39:27,669 --> 01:39:25,119
we've got decades to go

2596
01:39:30,390 --> 01:39:27,679
and who we will be for our future who

2597
01:39:33,510 --> 01:39:30,400
will we we will be as americans and as a

2598
01:39:36,790 --> 01:39:33,520
world is so dependent on having robust

2599
01:39:37,669 --> 01:39:36,800
investments in our space program

2600
01:39:40,950 --> 01:39:37,679
and

2601
01:39:43,030 --> 01:39:40,960
i would urge us to sing that message

2602
01:39:44,709 --> 01:39:43,040
outside of the doors as

2603
01:39:47,350 --> 01:39:44,719
as you've said

2604
01:39:49,990 --> 01:39:47,360
of the churches and worship centers to

2605
01:39:53,669 --> 01:39:50,000
sing that message because it really will

2606
01:39:57,590 --> 01:39:53,679
define who we are for this century and

2607
01:40:00,550 --> 01:39:57,600
uh so i am uh not just an excited um

2608
01:40:02,950 --> 01:40:00,560
proponent of our our space program and

2609
01:40:05,830 --> 01:40:02,960
the exploration and the science and all

2610
01:40:07,910 --> 01:40:05,840
of the technology because of the work

2611
01:40:10,390 --> 01:40:07,920
that is going and you know the the

2612
01:40:13,510 --> 01:40:10,400
importance of the work itself but i'm

2613
01:40:17,510 --> 01:40:13,520

excited because i know that it's a key

2614
01:40:20,149 --> 01:40:17,520
to us developing our future economic and

2615
01:40:22,229 --> 01:40:20,159
other success here and around the world

2616
01:40:25,270 --> 01:40:22,239
and i think it's important for the rest

2617
01:40:28,149 --> 01:40:25,280
of us to get that message we will only

2618
01:40:30,070 --> 01:40:28,159
be as good and strong as our investments

2619
01:40:32,950 --> 01:40:30,080
in technology and the core of those

2620
01:40:34,629 --> 01:40:32,960
investments is the work that we do at

2621
01:40:38,470 --> 01:40:34,639
nasa

2622
01:40:41,510 --> 01:40:38,480
i want to share with you a last uh story

2623
01:40:44,149 --> 01:40:41,520
and it is the story of a i every year i

2624
01:40:46,870 --> 01:40:44,159
go on a family camping trip fourth of

2625
01:40:49,030 --> 01:40:46,880
july uh all of our family extended

2626
01:40:51,270 --> 01:40:49,040
family and friends pitch our tents on

2627
01:40:52,310 --> 01:40:51,280
the beaches at assateague

2628
01:40:55,030 --> 01:40:52,320
and

2629
01:40:57,590 --> 01:40:55,040
just enjoy our few days well i was with

2630
01:40:59,669 --> 01:40:57,600
a group of the young kids because now my

2631
01:41:01,590 --> 01:40:59,679
young kid is not so young anymore and so

2632
01:41:03,669 --> 01:41:01,600
he won't just lie out on the beach with

2633
01:41:06,550 --> 01:41:03,679
me and look up at this at the stars but

2634
01:41:09,109 --> 01:41:06,560
i was with uh this group of of young

2635
01:41:12,070 --> 01:41:09,119
children and you know they ranged in age

2636
01:41:13,510 --> 01:41:12,080
from about four years old to uh you know

2637
01:41:15,910 --> 01:41:13,520
about 11.

2638
01:41:18,550 --> 01:41:15,920

and we spread our blankets out on the

2639
01:41:21,189 --> 01:41:18,560
beach in a dark night sky

2640
01:41:24,070 --> 01:41:21,199
and it was clear as you would believe

2641
01:41:26,790 --> 01:41:24,080
and we all were just you know spread out

2642
01:41:29,910 --> 01:41:26,800
looking up at the sky and the kids were

2643
01:41:32,229 --> 01:41:29,920
so fascinated by the stars and the

2644
01:41:34,470 --> 01:41:32,239
planets and they wanted to be there and

2645
01:41:36,390 --> 01:41:34,480
you know what i felt like i was about

2646
01:41:38,870 --> 01:41:36,400
four or five years old too because i

2647
01:41:40,709 --> 01:41:38,880
wanted to be there too and lori i may

2648
01:41:42,229 --> 01:41:40,719
have to tackle you on that mission to

2649
01:41:44,709 --> 01:41:42,239
mars

2650
01:41:47,990 --> 01:41:44,719
because i think that i think that we

2651
01:41:51,910 --> 01:41:48,000
really do have an opportunity to inspire

2652
01:41:54,310 --> 01:41:51,920
a new generation of science leaders we

2653
01:41:56,229 --> 01:41:54,320
really do and you go and it doesn't

2654
01:41:58,790 --> 01:41:56,239
matter you go to any school any

2655
01:42:01,270 --> 01:41:58,800
elementary school any high school and

2656
01:42:04,149 --> 01:42:01,280
you can see it when that conversation

2657
01:42:06,070 --> 01:42:04,159
happens and i know that all of us who

2658
01:42:08,390 --> 01:42:06,080
make a point and we should make a point

2659
01:42:11,189 --> 01:42:08,400
no matter what it is that you do

2660
01:42:13,109 --> 01:42:11,199
going out to those schools in your local

2661
01:42:15,109 --> 01:42:13,119
communities and just talking with the

2662
01:42:17,750 --> 01:42:15,119
young people about what it is that you

2663
01:42:20,070 --> 01:42:17,760

do and why you're so inspired and dr

2664
01:42:23,510 --> 01:42:20,080
braun they will get your passion because

2665
01:42:25,510 --> 01:42:23,520
i felt your passion sitting over here

2666
01:42:27,109 --> 01:42:25,520
and i know that our young people will

2667
01:42:29,030 --> 01:42:27,119
and they will take on

2668
01:42:30,149 --> 01:42:29,040
that challenge and then

2669
01:42:33,189 --> 01:42:30,159
you will

2670
01:42:37,109 --> 01:42:33,199
leave it to us but not to us alone to

2671
01:42:39,030 --> 01:42:37,119
make sure that nasa has the resources

2672
01:42:41,350 --> 01:42:39,040
that match the vision

2673
01:42:43,910 --> 01:42:41,360
and the mission that's always been the

2674
01:42:46,950 --> 01:42:43,920
challenge to bring the resources

2675
01:42:50,629 --> 01:42:46,960
close to the mark where that mission and

2676
01:42:52,229 --> 01:42:50,639
vision is and i know that we can do it

2677
01:42:56,709 --> 01:42:52,239
just a couple of months ago when i

2678
01:42:57,669 --> 01:42:56,719
turned 53 my birthday present was

2679
01:43:00,149 --> 01:42:57,679
a day

2680
01:43:03,350 --> 01:43:00,159
flying in f-16

2681
01:43:05,830 --> 01:43:03,360
and so you know i only made the 5g mark

2682
01:43:07,430 --> 01:43:05,840
and so the next time i go and i you know

2683
01:43:09,669 --> 01:43:07,440
didn't hurl or anything like that that

2684
01:43:10,790 --> 01:43:09,679
was a major goal

2685
01:43:13,590 --> 01:43:10,800
but

2686
01:43:16,470 --> 01:43:13,600
when as as we were you know going up and

2687
01:43:18,950 --> 01:43:16,480
into into a loop i just said oh my gosh

2688
01:43:21,510 --> 01:43:18,960

i just want to go farther

2689
01:43:23,750 --> 01:43:21,520
and i know that this next generation

2690
01:43:26,149 --> 01:43:23,760
wants to do that same thing and all of

2691
01:43:28,629 --> 01:43:26,159
the things that we do here on earth that

2692
01:43:30,870 --> 01:43:28,639
actually help to build for that kind of

2693
01:43:33,430 --> 01:43:30,880
technology and then all of the things

2694
01:43:35,430 --> 01:43:33,440
that we do way out there that gives us

2695
01:43:36,550 --> 01:43:35,440
gives us ideas about how to better

2696
01:43:41,910 --> 01:43:36,560
understand

2697
01:43:44,629 --> 01:43:41,920
our planet this is our future and so i

2698
01:43:46,629 --> 01:43:44,639
just appreciate being able to share a

2699
01:43:48,390 --> 01:43:46,639
few words with you this morning and to

2700
01:43:50,709 --> 01:43:48,400
know that

2701
01:43:51,750 --> 01:43:50,719
you have this member of congress

2702
01:43:54,550 --> 01:43:51,760
fighting

2703
01:43:57,270 --> 01:43:54,560
for our space program and all that it

2704
01:43:58,070 --> 01:43:57,280
holds but there are others too and we

2705
01:44:00,790 --> 01:43:58,080
need

2706
01:44:03,030 --> 01:44:00,800
more and so thank you very much it's

2707
01:44:05,590 --> 01:44:03,040
exciting to be here i looked through the

2708
01:44:07,990 --> 01:44:05,600
panels today and i thought i wanted to

2709
01:44:09,590 --> 01:44:08,000
stay for the entire day and then you

2710
01:44:11,750 --> 01:44:09,600
know i look at my

2711
01:44:13,030 --> 01:44:11,760
blackberry and they tell me that that is

2712
01:44:15,430 --> 01:44:13,040
impossible

2713
01:44:17,910 --> 01:44:15,440

but it's better for me to know that you

2714
01:44:28,390 --> 01:44:17,920
are here and that you will be out there

2715
01:44:31,910 --> 01:44:30,229
thank you congresswoman for joining us

2716
01:44:34,149 --> 01:44:31,920
today it means a lot to have you here

2717
01:44:36,390 --> 01:44:34,159
and we appreciate your support we look

2718
01:44:38,390 --> 01:44:36,400
forward to going farther out and also

2719
01:44:40,229 --> 01:44:38,400
closer into our home planet

2720
01:44:42,229 --> 01:44:40,239
uh for the time being we're going to

2721
01:44:43,510 --> 01:44:42,239
take a short break from our future forum

2722
01:44:46,470 --> 01:44:43,520
here at the university of maryland

2723
01:44:49,750 --> 01:44:46,480
college park we're going to regroup in

2724
01:44:52,070 --> 01:44:49,760
this room at 10 15 a.m eastern we're

2725
01:44:53,910 --> 01:44:52,080
going to stick to our schedule if we can

2726
01:44:56,629 --> 01:44:53,920
so we'll take a short break and be back